

## SILVER FOR ASSUR: KANESH, ACEMHÖYÜK AND METAL WEALTH IN THE TAURUS HIGHLANDS

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### *Abstract*

*The location of the mines that supplied silver, which Old Assyrian merchants shipped to Assur in large quantities, remains unclear. Recent lead isotope analyses of artefacts found at Acemhöyük, Qalat Shergat (ancient Assur) and Kültepe (ancient Kanesh) suggest that these objects originated from the Taurus Mountains.*

### INTRODUCTION

It is both an honor and a pleasure to have been invited to contribute an article to this issue of *Anatolica* for Klaas Veenhof who celebrates his 80<sup>th</sup> anniversary: a pleasure because it is gratifying to have the opportunity to pay tribute to a scholar who played such an important role in a major field in Assyriology, the Old Assyrian textual corpus from Kültepe; and an honor because of his eminence as an economic historian of such extensive background. In the course of a distinguished career, Professor Veenhof touched on many aspects of the Middle Bronze Age of central Anatolia in general and in particular, the Kültepe-Kanesh texts. While my contribution does not address his particular expertise, I will present the results of silver, copper and lead samples taken from the Istanbul Archaeological Museum stemming from the excavations at Qalat Shergat, ancient Assur. A second dataset of samples given to the author by the excavators, includes a silver hoard from Acemhöyük and iron bloom fragments from Kültepe, two of the Anatolian centers in the Assyrian trade network. The Assur, Kültepe and Acemhöyük metal analyses presented here have been published in science journals several decades ago. However, since these findings have been mostly inaccessible to philologists as well as archaeologists, it is worth reemphasizing them here in the context of recent research in ancient highland metallurgy in Turkey and its sources.<sup>1</sup> These new emphases have led to a better understanding of cultural relations, especially during the formative periods of metal technology and state formation in Anatolia.

Many of the Kültepe texts have documented one of the major goals of the Assyrian merchants, silver from Anatolia. Over the course of several decades, Klaas Veenhof has provided us with a fine-grained understanding of the dynamic trade networks into which Kültepe and Acemhöyük are embedded.<sup>2</sup> The well-known silver, gold, *annaku* (tin or alloying material) and textile trade about which Veenhof has written in great detail spurred my archaeometallurgical project to locate the silver sources in Turkey of relevance to the second millennium BC.

<sup>1</sup> Lehner and Yener 2014; Yener *et al.* 2015.

<sup>2</sup> Veenhof 1972, 1987, 1999, 2014.

Metal technologies are strategically placed in complex networks and institutions of production, exchange and consumption that unite resource areas and urban centers.<sup>3</sup> Once metal became locked into a cultural system as an indicator of wealth, distant groups were linked together into cooperative agreements, hence the Assyrian commercial network.<sup>4</sup> However, the analytical program, only part of which is presented here, has suggested that the ore-metal production-exchange intra-Anatolian networks were in place long before the Assyrian merchants arrived.

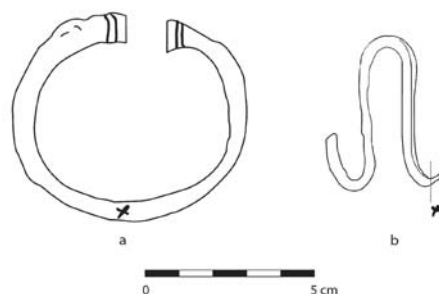


Fig. 1a. Silver bracelet, Assur Grave 20 (drawing K.A. Yener).

Fig. 1b. Copper-based pendant, Assur Grave 5 (drawing K.A. Yener).

### THE SAMPLES FROM ASSUR

The history of the division between the Istanbul Archaeological Museum and the Berlin Museum of the Assur artifacts from the 1903-1913 excavations by W. Andrae is an interesting one.<sup>5</sup> While the sampled examples from Istanbul represented part of the collection divided by the Ottoman representative and Germany on-site in Iraq, the rest wound up in the Vorderasiatisches Museum in Berlin after a long sojourn at Lisbon (where some artifacts still remain) due to the outbreak of World War I. Samples for analyses were taken during 1982 and 1984 from a number of Assur artifacts archived in the Eski Şark Eserleri [Ancient Near East] section of the Istanbul Archaeological Museum in order to obtain lead isotope ratios for sourcing the metal to the mine.

The first sample (Fig. 1a) is from a silver bracelet found in Grave 20 in Assur.<sup>6</sup> The silver bracelet (one of two sampled) with round cross section has flattened ends, which were decorated with incised vertical grooves.<sup>7</sup> This richly endowed burial<sup>8</sup> has been dated to the early second millennium (19-18<sup>th</sup> c. BC)<sup>9</sup> and is said to be of an Old Assyrian merchant.<sup>10</sup> The collection from this Old Assyrian period inhumation, especially the artifacts from the Vorderasiatisches Museum has been published a number of times and arguments about its exact dating, the typology of the sumptuous artifacts and identity of the buried person have been given much attention.<sup>11</sup> According to the results of our analysis, the source of the silver best fits

<sup>3</sup> Lehner and Yener 2014.

<sup>4</sup> Lehner 2014; Kulakoğlu and Kangal 2010.

<sup>5</sup> Harmankaya 1978; Eldem 1933; Klengel-Brandt 1995.

<sup>6</sup> Excavation no. 20504; Yener *et al.* 1991: 561, Smithsonian sample no. MAN 194.

<sup>7</sup> Müller-Karpe 1995: Abb. 34 no. 12.

<sup>8</sup> Haller 1954; Andrae 1938.

<sup>9</sup> This article follows the “Middle Chronology”, which best fits Anatolian chronology.

<sup>10</sup> Maxwell-Hyslop 1970; Wartke 1995.

<sup>11</sup> Calmeyer 1977; Müller-Karpe 1995; Maxwell-Hyslop 1971; Spanos 1977; Quitta 1982.

a group of mines (Taurus 2A group) from Aladağ in the central Taurus Mountains close to the Cilician Gate passes from central Anatolia to Cilicia.

A second sample was obtained from a thin lead plaque from Assur and is the youngest of the three described here. Dating to the Middle Assyrian period (14<sup>th</sup>-12<sup>th</sup> c. BC), it was found in the Ishtar Temple.<sup>12</sup> According to traditional wisdom argentiferous galena is the main ore for silver in the ancient Near East during a period when much of the economy and trade was based on a silver standard.<sup>13</sup> The production of silver from its ore entails a two-step process of smelting and cupellation after which a by-product is litharge (oxidized lead with the silver removed). Again, according to the results of our analysis, the source of the lead best fits the Taurus 2A group from Aladağ in the central Taurus Mountains. Presumably the ore was smelted in the tier one industrial zone of the Taurus Mountains before ingots of lead and silver were transported to Assur.

Finally, a copper-based pendant (Fig. 1b) was sampled found in Grave 5 at Assur,<sup>14</sup> which dates to the last quarter of the third millennium BC (Ur III), a date that is earlier than the Old Assyrian network was conventionally said to have been established. The pendant is a thin piece of wire with two ends curling upward in an omega-like shape. Interestingly, the lead from this copper artifact, and therefore possibly the copper, is consistent with the same isotopic group of mines (Taurus 1B) as the Early Bronze Age tin mine at Kestel. These mines are situated across the valley and in the same mining district as the Aladağ silver mines of the Taurus 2A group, which was the source of the two silver and lead samples from Assur mentioned above. It is interesting to note how enduring the repetitive extraction, production and trade from this central Taurus mining resource zone was for Assur over the centuries. It is not surprising that the Taurus was called the “Silver Mountain” in Mesopotamian and Hittite legends. In terms of other metals such as copper, traditional understanding of the texts maintains that the copper that circulated among the polities of central Anatolia apparently did not go south of the Taurus to Assur. If our interpretation holds, it runs counter to how text specialists describe metal trade. While the texts do provide insights into the Assyrian interests of the commerce, it is important to problematize the situation that much more complexity existed than is reflected in the tablets.

### **The samples from Kültepe (ancient Kanesh) and Acemhöyük**

The first sample from this group of Anatolian artifacts is part of a silver hoard of 210 pieces from the MBA Sarıkaya palace Level III at Acemhöyük.<sup>15</sup> On the basis of radiocarbon and archaeological datasets such as sealings of Šamši-Adad, who was one of the Assur rulers contemporary to the Assyrian trading Kültepe Ib period, the palace context dates to the 18<sup>th</sup> c. BC. According to the results of our analysis,<sup>16</sup> the source of the silver ingot from Acemhöyük

<sup>12</sup> Andrae 1935, excavation no. 11306; Smithsonian sample no. MAN 191.

<sup>13</sup> Powell 1987, 1996.

<sup>14</sup> Excavation no. 20573, Istanbul Archaeological Museum no. 12522, Smithsonian sample no. MAN 168.

<sup>15</sup> N. Özgüç 1995; Özten 1997; Erkanal 2006; Yener 2007; Smithsonian sample no. AAN184.

<sup>16</sup> Yener *et al.* 1991: 572.

again best fits the Aladağ mines in the central Taurus Mountains close to the Cilician Gate passes. Atomic Absorption analyses by H. Özbal<sup>17</sup> revealed that the silver hoard sample was quite pure (71.8% silver) with lead falling below the detection levels, with high levels of gold (1918 ppm) suggesting native silver or very well refined silver. These values were further confirmed with analyses by Çukur and Kunç (1990). The second sample is a fragment of iron slag or bloom from Kültepe and dates to Level Ia (the post-Assyrian Trading-Old Hittite period, c. 1650-1600 BC). According to the results of our analysis,<sup>18</sup> the source of the ore from Kültepe best fits the Aladağ mines in the central Taurus Mountains close to the Cilician Gate passes.

## DISCUSSION

Fairly compelling evidence exists that a number of the ore sources of the central Taurus have been mined either continuously or in recurrent periods from earliest antiquity to the present day and have been utilized by local Anatolian polities. The ores from the Taurus, especially Bolkardağ and Aladağ, include deposits of argentiferous lead-copper-zinc-iron and tin and represent the major highland mining and smelting centers which constituted tier one of a multi-tiered production model.<sup>19</sup> After extraction and initial smelting of the argentiferous lead and silver ore from these mines (tier one), the semi-processed materials would then be taken to the urban center (tier two) to be further refined, processed and poured into idiosyncratic shapes to travel with the Assyrian merchants to Assur (Yener 1986) or get further transported to other Anatolian centers (for copper see Dercksen 1996). The conceptual underpinning that structured dynamic changes in reference to highland production models is one that involves metals. Metals are precious not only in terms of economic value, but critical beyond calculation for their role in the negotiation of status and power, and their embodiment of a value added commodity for trade. The role of the Assyrian merchants in the tier one highland local production of silver is as-yet not known nor is there information in the texts of the organization of the mining and production of silver in tier one industrial zones (but see Savaş 2006).

While Kültepe and Acemhöyük were obviously obtaining silver from a myriad of possibilities as far as the Taurus Mountains, another feature bears closer scrutiny. Anatolia is a massive resource zone for metals, therefore, it is important to stress the intra-Anatolian affiliations linking non-Taurus ore production sites to these MBA central Anatolian regional centers as well. For example MBA copper slag, silver and lead artifact samples obtained from Acemhöyük, Alişar, Kültepe, Karahöyük-Konya as well as an arsenopyrite ore obtained from Acemhöyük all conform to mining centers in the Black Sea region.<sup>20</sup> It is within this matrix of local exchange networks and shared production traditions that Central Anatolia witnessed an increase in complex social and economic relationships with Syro-Mesopotamian cities. The internal, but mute Anatolian metal exchange system which assuredly began in the EBA was a

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<sup>17</sup> Sayre *et al.* 2001: 111.

<sup>18</sup> Sayre *et al.* 2001: 100.

<sup>19</sup> Yener 2000 and references.

<sup>20</sup> Sayre *et al.* 2001: 110-111.



precursor to the Assyrian commodity exchange.<sup>21</sup> Bachhuber (2011) in his study of the Alaca Höyük tombs correctly refocuses scholarly attention on the effects on local communities within networks of metal production and long distance exchange. This concept of consumption, status and systems of value illuminated by Andrew and Susan Sherratt (1991) should be underscored for targeting future research into the role of metals in the formative periods of Anatolian urbanism. However nebulous the relationships may be, as part of a wider, complex network of prestige and luxury item exchange, silver traveled vast geographical distances over long periods of time as the linkage with Assur indicates. As Şahoğlu (2005) has suggested, important connections were being established by Syro-Mesopotamian polities during the EBA (for silver see Yener 1986) within which the second millennium networks may have taken hold. Whether traded as bars, ingots, scrap metal or silver rings, silver increasingly gained significance as the developing economies of Anatolia and Mesopotamia became irrevocably linked in overland exchange in the subsequent second millennium BC Kanesh-Assur networks.

## CONCLUSIONS

This small contribution has been offered to emphasize the importance of identifying the Anatolian production of silver for two critical centers, Assur and Acmhöyük. These two cities represent two ends of a complex network of extraction, production and trade given voice by the archives from Kültepe-Kanesh. Previously published lead isotope analyses of sampled metal artifacts from Assur<sup>22</sup> and the Acmhöyük silver hoard from the Sarıkaya palace,<sup>23</sup> as well as the Kültepe iron sample, demonstrate that all were being supplied from the same resource and mining zone, Aladağ in the central Taurus Mountains. Whether there is a common and centrally controlled administrative system that linked the resource areas and urban centers or, alternatively, the highland extraction patterns reflect serendipitous itinerant mining and/or transhumance is not known. For example, according to research in the Indus region the tendency for centralization and control increases with value and technological virtuosity.<sup>24</sup> In Anatolia, as metals moved along the tiers of production, they arguably acquired added value, especially when raw metals were further refined and finally transformed into a finished object. As silver became more important for socio-economic and political agendas, sources like the Taurus began to make sense as a supplier to distant regions for this status-infused strategic metal.

## ACKNOWLEDGEMENTS

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<sup>21</sup> Özgüç 1964; Yener 1980.

<sup>22</sup> Sayre *et al.* 1992; 2001.

<sup>23</sup> Özten 1997; Yener 2007.

<sup>24</sup> Vidale and Miller 2000.

## BIBLIOGRAPHY

- Andrae, W., 1922 — Die archaischen Ishtar-Tempel in Assur. Ausgrabungen der Deutschen Orient-Gesellschaft in Assur: Baudenkmäler aus Assyrischer Zeit 4, Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 39. Leipzig: J.C. Hinrichs.
- Andrae, W., 1935 — Die jüngeren Ishtar-tempel in Assur. Leipzig: J.C. Hinrichs.
- Andrae, W., 1938 — Das wiedererstandene Assur. Leipzig: J.C. Hinrichs.
- Bachhuber, C., 2011. Negotiating Metal and Metal Form in the Royal Tombs of Alacahöyük in North-Central Anatolia. In: T.C. Wilkinson, S. Sherratt, J. Bennet (eds.), *Interweaving Worlds: Systemic Interactions in Eurasia, 7<sup>th</sup> to 1<sup>st</sup> Millennium BC*, 158-174. Oxford: Oxbow Books.
- Calmeyer, Peter, 1977 — Das Grab eines Altassyrischen Kaufmanns, *Iraq* 39: 87-97.
- Çukur, A. and S. Kuş, 1990 — Acem Höyük Bakır Buluntu Analizleri, V. *Arkeometri Sonuçları Toplantısı*, 33-39. Ankara: Ministry of Culture.
- Dercksen, J.G., 1996 — The Old Assyrian Copper Trade in Anatolia (PIHANS 75). Leiden: Nederlands Instituut voor het Nabije Oosten.
- Dercksen, J.G., 2005 — Metals according to Documents from Kültepe-Kanish Dating to the Old Assyrian Colony Period. In: Ü. Yalçın (ed.), *Anatolian Metal III. Der Anschnitt, Beiheft 18*, 17-35. Bochum: Deutsches Bergbau-Museum.
- Erkanal Ökür, A., 2006 — Panztepe'de Bulunan Kurşun Külçenin/Ağırlığın Madencilikte Yeri ve Önemi, *Hacettepe Üniversitesi Edebiyat Fakültesi Dergisi* 23/2: 1-20.
- Haller, A., 1954 — Die Gräber und Gräfte von Assur. Berlin: Gebr. Mann.
- Harmankaya, N. Savas, 1978 — Kalat Şergat (Aşur), Tello (Girsu) ve Fara (Şuruppak) Maden Buluntularının Anadolu Maden Buluntuları ile Tipolojik İlişkileri Sorunu. Unpublished PhD dissertation, Istanbul University.
- Klengel-Brandt, E., 1995 — The History of Ashur in the Third and Second Millennia B.C. In: P.O. Harper, E. Klengel-Brandt, J. Aruz, K. Benz, (eds.), *Assyrian Origins: Discoveries at Ashur on the Tigris: Antiquities in the Vorderasiatisches Museum, Berlin*, 21-24. New York: The Metropolitan Museum of Art.
- Kulakoğlu, F., and S. Kangal, 2010 — Anatolian's Prologue: Kültepe Kanesh Karum. Assyrians in Istanbul. Kayseri: Kayseri Metropolitan Municipality Publication 78.
- Lehner, J.W., 2014 — Metal Technology, Organization, and the Evolution of Long-Distance Trade at Kültepe. In: L. Atıcı, F. Kulakoğlu, G. Barjamovic, A. Fairbairn (eds.), *Current Research at Kültepe/Kanesh: An Interdisciplinary and Integrative Approach to Trade Networks, Internationalism, and Identity*, 135-155. Atlanta: Lockwood Press.
- Lehner, J.W., and K.A. Yener, 2014 — Organization and Specialization of Early Mining and Metal Technologies in Anatolia. In: B.W. Roberts and C.P. Thornton (eds.), *Global Archaeometallurgy: Methods and Syntheses*, 529-557. New York: Springer Verlag.
- Maxwell-Hyslop, R., 1970 — Near Eastern Gold Treasures: A Note on the Assyrian Evidence, *Antiquity* 44: 227-228.
- Maxwell-Hyslop, R., 1971 — Western Asiatic Jewellery 3000-612 BC. London: Methuen.
- Müller-Karpe, M., 1995 — Zu den Erdgräbern 18, 20 und 21 von Assur. Ein Beitrag zur Kenntnis mesopotamischer Metallgefäße und -waffen von der Wende des 3. zum 2. Jahrtausends v. Chr., *Jahrbuch des Römisch-Germanischen Zentralmuseums Mainz* 42: 257-352.
- Özgüç, N., 1995 — Silver and Copper Ingots from Acemhöyük. In: R.M. Boehmer, U. Finkbeiner, R. Dittmann, and H. Hauptmann (eds.), *Beiträge zur Kulturgeschichte Vorderasiens: Festschrift für Rainer Michael Boehmer*, 513-520. Mainz: Verlag Philipp von Zabern.
- Özgüç, T., 1964 — The Art and Architecture of Ancient Kanish, *Anatolia* 8: 27-48.
- Özten, A., 1997 — Acemhöyük Gümüş Hazinesi [The Silver Treasure of Acemhöyük], *Belleten* 61/231: 233-71.
- Powell, M.A., 1978 — A Contribution to the History of Money in Mesopotamia Prior to the Invention of Coinage. In: B. Hruška, G. Komoróczy (eds.), *Festschrift Lubor Matouš*.

- Volume II (= *Assyriologia* 5), 211-244. Budapest: Eötvös Loránd Tudományegyetem Ókori Történeti Tanszék.
- Powell, M.A., 1996 — Money in Mesopotamia. *Journal of the Economic and Social History of the Orient* 39: 224-242.
- Quitta, H., 1981 — Zur Chronologie der früh-bronzezeitlichen Trojaschichten. In: E. Hühns (ed.), *Troja und Thrakien: Annäherung an eine Kultur. Exhibition Catalogue*, 21-29. Berlin: Museum für Ur- und Frühgeschichte.
- Savas Özkan Savas, 2006 — Çivi Yazılı Belgeler Işında Anadolu'da (i.ö. 2. bin yılında) Madencilik ve Maden Kullanımı. Ankara: DTCF yayınları.
- Sayre, E.V., K.A. Yener, E.C. Joel and I.L. Barnes, 1992 — Statistical Evaluation of the Presently Accumulated Lead Isotope Data from Anatolia and Surrounding Regions, *Archaeometry* 34: 73-105.
- Sayre, E.V., K.A. Yener, E.C. Joel, J.M. Blackman, and H. Özbal, 2001 — Stable Lead Isotope Studies of Black Sea Anatolian Ore Sources and Related Bronze Age and Phrygian Artefacts from Nearby Archaeological Sites. Appendix: New Central Taurus Ore Data. *Archaeometry* 43: 77-115.
- Sheratt, A.G. and E.S. Sherratt, 1991 — From Luxuries to Commodities: The Nature of Mediterranean Bronze Age Trading Systems. In: N.H. Gale (ed.), *Bronze Age Trade in the Mediterranean*, 351-386. Jonsered: P. Åströms Förlag.
- Spanos, P.Z., 1977 — Zur absoluten Chronologie der zweiten Siedlung in Troja, *Zeitschrift für Archäologie* 67: 85-107.
- Veenhof, K.R., 1972 — Aspects of Old Assyrian Trade and its Terminology. Leiden.
- Veenhof, K.R., 1987 — 'Dying Tablets' and 'Hungry Silver'. Elements of Figurative Language in Akkadian Commercial Terminology. In: M. Mindlin *et al.* (eds.), *Figurative Language in the Ancient Near East* 41-75. London: University of London, School of Oriental and African Studies.
- Veenhof, K.R., 1999 — Silver and Credit in Old Assyrian Trade. In: J.G. Dercksen (ed.), *Trade and Finance in Ancient Mesopotamia*, 55-83. Istanbul: Nederlands Historisch-Archaeologisch Instituut te Istanbul.
- Veenhof, K.R., 2014 — Silver in Old Assyrian Trade. Shapes, Qualities and Purification. In: Z. Csabai (ed.), *Studies in Economic and Social History of the Ancient Near East in Memory of Péter Vargyas*, 393-422. Budapest: The Hungarian Society for Ancient Studies.
- Vidale, M., and H.M.-L. Miller, 2000 — On the Development of Indus Technical Virtuosity and Its Relation to Social Structure. In: M. Taddei, G. de Marco (eds.), *South Asian Archaeology 1997*, 115-132. Naples, Rome: Istituto Italian per l'Africa e l'Oriente & Istituto Universitario Orientale.
- Wartke, R-B, 1995 — Old Assyrian Merchants Grave 20. In: P.O. Harper, E. Klengel-Brandt, J. Aruz, K. Benzel (eds.), *Assyrian Origins: Discoveries at Ashur on the Tigris: Antiquities in the Vorderasiatisches Museum*, Berlin, 44-47. New York: The Metropolitan Museum of Art.
- Yener, K.A., 2007 — The Anatolian Middle Bronze Age Kingdoms and Alalakh: Mukish, Kanesh, and Trade. In: S.I. Fletcher and A. Greaves, *Bridging the Gap between East and West in the Archaeology of Ancient Anatolia*, *Anatolian Studies* 57: 151-160.
- Yener, K.A., 2000 — The Domestication of Metals: The Rise of Complex Metal Industries in Anatolia (c. 4500-2000 B.C.). Leiden: E.J. Brill.
- Yener, K.A., 1986 — The Archaeometry of Silver in Anatolia: the Bolkardag mining district, *American Journal of Archaeology* 90: 469-72.
- Yener, K.A., 1980 — Third Millennium B.C. Interregional Exchange in Southwest Asia with Special Reference to the Keban Region of Turkey. PhD dissertation, Columbia University.
- Yener, K.A., F. Kulakoğlu, E. Yazgan, R. Kontani, Y.S. Hayakawa, J. W. Lehner, G. Dardeniz, G. Öztürk, M. Johnson, E. Kaptan and A. Hacı, 2015 — New Tin Mines and Production Sites near Kültepe in Turkey: a Third Millennium BC Highland Production Model, *Antiquity* 89: 596-612.
- Yener, K.A., E.V. Sayre, E. Joel, H. Özbal, I.L. Barnes and R.H. Brill, 1991 — Stable Lead Isotope Studies of Central Taurus Ore Sources and Related Artifacts from Eastern Mediterranean Chalcolithic and Bronze Age Sites, *Journal of Archaeological Science* 18: 541-577.

## A GOLD PLAQUE FROM KAMAN-KALEHÖYÜK AND THE ‘LION-DRAGON’ MOTIF

Masako Omura<sup>1</sup>

### *Abstract*

*A gold plaque crumpled in a lump was found in a room dated to the Period of Assyrian Trade Colonies at Kaman-Kalehöyük in 2010. The gold sheet was partially unfolded and a proposed restoration drawn. Although the upper part of the plaque is missing, the design cut out of gold sheet is thought to be a composition of a lion-dragon standing on its hind legs with a fawn at its feet, all enclosed within a frame. The motif of the lion-dragon is one of the subjects brought to Anatolian art from Mesopotamia in the early phase of the second millennium B.C. The lion-dragons observed on seal impressions from Karum Kanesh are in the tradition of Sumerian and Akkadian art in their forms and concepts. The gold plaque from Kaman-Kalehöyük offers another example of the lion-dragon and the nature of Mesopotamian influence on Anatolian art.*

### LOCATION AND STRATIGRAPHY OF KAMAN-KALEHÖYÜK

Kaman-Kalehöyük is a mound site located 100 km southeast of Ankara and 3 km east of Kaman, Kırşehir, Turkey. It is immediately south of National Route 260 which connects Ankara, Kayseri, and Adana. An older route called *Göç yolu* or *Kervan yolu* passes on an east-west axis along the southern side of the mound. The mound measures 280 m in diameter and 16 m in height. The surrounding area is agricultural land, planted mostly with wheat<sup>2</sup>.

Excavations since 1986 have revealed four main stratigraphic levels:

- Stratum I: Ottoman period, 15<sup>th</sup> to 17<sup>th</sup> c. A.D.
- Stratum II: Iron Age, 12<sup>th</sup> to 4<sup>th</sup> c. B.C. Stratum II is subdivided into four phases. IIa and IIb: Late Iron Age; IIc: Middle Iron Age; IId: Early Iron Age.
- Stratum III: Middle and Late Bronze Ages, 20<sup>th</sup> to 12<sup>th</sup> c. B.C. Stratum III is subdivided into three phases. IIIa: Hittite Imperial Period; IIIb: Old Hittite Period; IIIc: Assyrian Trade Colonies Period.
- Stratum IV: Early Bronze Age, 30<sup>th</sup> to 20<sup>th</sup> c. B.C. The investigations of Stratum IV are ongoing and only two upper sublayers have been distinguished as yet. IVa: Period of Transition from Early Bronze Age to Middle Bronze Age; IVb: Early Bronze Age in the second half of the third millennium B.C.

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<sup>2</sup> Omura, S. 2011:1095-1096; Omura, S. 2013: 290-291.

### **Stratum IIIc: The Period of Assyrian Trade Colonies at Kaman-Kalehöyük**

Stratum IIIc has been excavated in two main areas at Kaman-Kalehöyük. Near the center of the mound, three building levels in Stratum IIIc have been uncovered<sup>3</sup>. All show evidence of significant conflagrations and also were seriously damaged by the buildings of Stratum IIIa and Stratum IIIb. A building made of mud-brick walls in the uppermost layer of IIIc in sectors XII and XXVIII is representative of this stratum. This large, two-story building had several rooms preserved in good condition. In particular, rooms R148 and R150 and the area near them contained many human skeletons and large quantities of ceramics and other objects such as weapons, accessories, seals, and seal impressions. Based on these finds, this layer is dated to the later phase of the period of Assyrian Trade Colonies<sup>4</sup>.

Stratum IIIc has also been investigated in the northern part of the mound, in sectors IV, V, VI, VII, and VIII, where a sequence of cultures from the Early Bronze Age to the Iron Age has been confirmed. Here, Stratum IIIc consists of more than ten building levels, and the finds and stratigraphic relationships date it to the earlier phase of the period of Assyrian Trade Colonies<sup>5</sup>. Stratum IVa, the period of Transition, appears directly beneath Stratum IIIc in this area. In the debris of the upper phase of IVa, a lead plate figurine in the shape of a naked female (KL13-39(13000026)) was discovered together with hand-made pottery including Alişar III painted ware. The naked female figurine is very similar to one found in Level IV at Acemhöyük, which is contemporary with Kanesh karum III and IV levels<sup>6</sup>.

GOLD PLAQUE: KL10-I (10000009) (Fig. 1)

#### **Find situation and condition**

A gold object (KL10-1) crumpled in a lump was unearthed in room R409 in grid XXXIV-54, Sector VI in the northern area of the mound. This is a Stratum IIIc context dating to the period of the Assyrian Trade Colonies (Fig. 2).

Room R409 was formed by walls W29 and W32 and its hard floor was covered with a thin layer of white ash. A hearth in front of W29 had a pot-shape with a diameter of 35 cm and a depth of 10 cm. The earth surface of the hearth was hardened from intense heat<sup>7</sup>.

The find context and the crumpled, fragmented condition of the gold object indicate that the gold metal may have been intended for recycling, to be melted or refined again.

<sup>3</sup> Omura, S. 2011: 1106-1108.

<sup>4</sup> Omura, S. 2011: 1108; Omura, M. 1996.

<sup>5</sup> Omura, S. 1999; Omura, S. 2000; Omura, S. 2001.

<sup>6</sup> Emre 1971: 51-54, 131-133, Fig. 12-13. Pl. III 1-3; Özgüç, N. 1966: 26, 50-51.

<sup>7</sup> This information was based on the field diary of Kaman-Kalehöyük excavations.





Fig. 1. Gold plaque from Kaman-Kalehöyük: KL10-1(10000009).

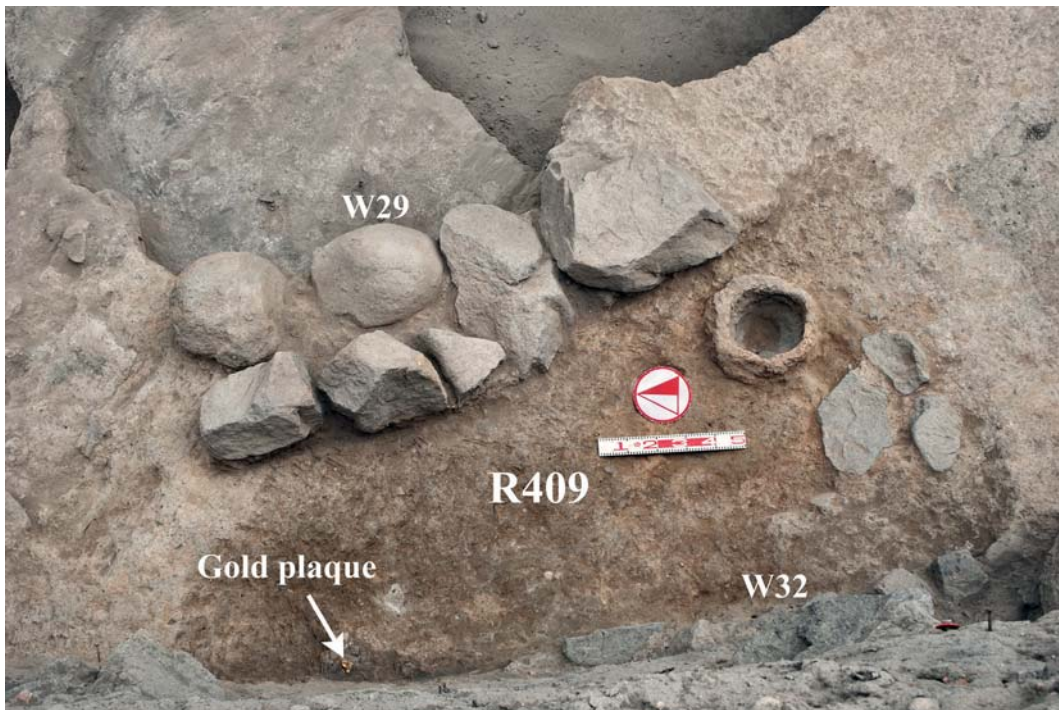


Fig. 2. KL10-1 unearthed on the floor of R409.

### Construction of the plaque

The crumpled gold lump as found was 4.7 cm wide, 5.3 cm long, and 3.0 cm thick. It weighs 104.4 g. The object was partially unfolded in the site laboratory. Examination showed that the gold was hammered into a 0.5 mm thick sheet and cut to form a figure. The metal was analyzed with a portable x-ray fluorescence analyzer at eleven sample points and found to range in composition from 87.2 % to 95.79 % gold, 1.98 % to 10.5 % silver and 1.55 % to 3.31 % copper. The majority of the point analyses indicate an alloy of AuAgCu homogenous solid solution (less than 10 % silver), but one point analysis reveals an alloy of higher silver content, which indicates a solder attachment<sup>8</sup>. The evidence of partial melting in some areas may also indicate soldering. Another joint technique evident is a pivot joint<sup>9</sup>.

This gold object may be a plaque representing a hybrid creature standing on its hind legs, bordered by a frame. Unfortunately, the upper part of the main figure is not preserved. A small fawn is at the feet of the figure. These figures are soldered to the frame at the ends of their limbs. A small hole is present on a wider band that is thought to be part of a wing, and two holes are evident on the frame; these indicate that this plaque may have been fixed on a wall or piece of furniture, probably with rivets.

The frame is made of short cylinders of gold placed parallel to each other and “sandwiched” between two flat strips of gold. The length of the cylinders is the same as the width of the strips. The figure and the details of its muscles are sharply outlined with thin gold wires soldered to one flat side of the plaque. It has been proposed that a cloisonné technique may have been used<sup>10</sup>, although there are no remains of cloisonné-inlay on the object.

The main figure of the plaque is missing its upper part, including the head. However, the massive body, a slightly fanned out tail, and a projection around the knee remind us of a hybrid creature called a ‘lion-dragon’ or ‘lion-griffin’ with wings standing on its hind legs. No talons are visible.

This crumpled plaque has not been unfolded completely, so it is difficult to restore the design and structure accurately. However, considering the elements mentioned above, a proposed restoration of the upper part of the figure has been drawn (Fig. 3). The holes mentioned above indicate that this object may have been mounted on a gate, wall, passage, or corner of a house to serve a protective purpose as an apotropaic hybrid creature<sup>11</sup>.

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<sup>8</sup> Paterakis, S. Omura and Bork, 2014a.

<sup>9</sup> Paterakis, S. Omura and Bork, 2014a.: Fig. 7-8.

<sup>10</sup> Paterakis, S. Omura and Bork, 2014b.

<sup>11</sup> The lion-dragon was also investigated among the apotropaic gods and monsters of Mesopotamia by Wiggermann (1992: xii, 185).



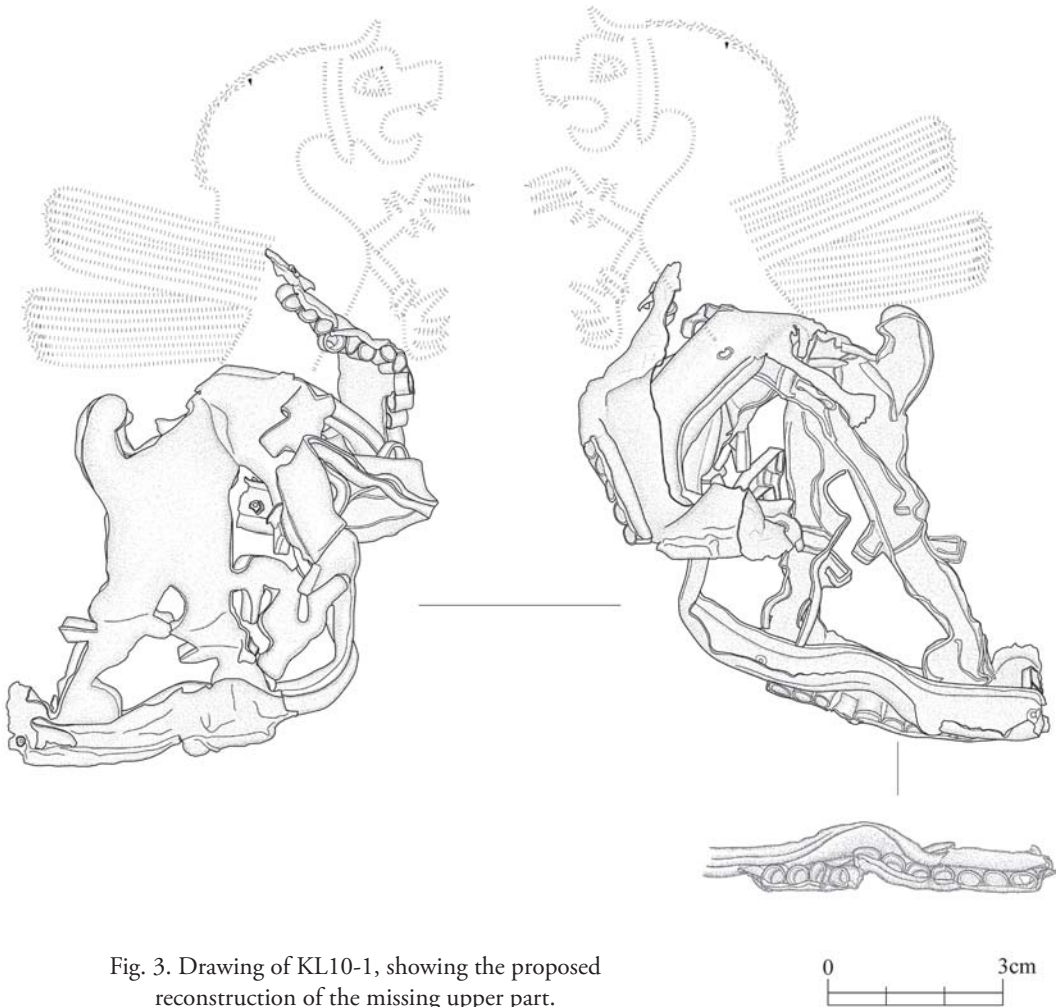


Fig. 3. Drawing of KL10-1, showing the proposed reconstruction of the missing upper part.

## LION-DRAGON

### The Lion-Dragon in Mesopotamia

The lion-dragon is a hybrid creature with the forepart of a lion, and hind legs, talons, wings and tail of a bird of prey. It is occasionally called a bird-lion or lion-griffin<sup>12</sup>. In Mesopotamia, the lion-dragon motif can be observed from Old Akkadian to Neo-Babylonian times, and its variations are classified into several types<sup>13</sup>. However, what we need here to treat the gold-sheet figurine from Kaman-Kalehöyük is to distinguish the type of lion-dragon standing

<sup>12</sup> Collon 1982: 18; Collon 1986: 44-45; Özgüç, N. 1991: 301-302; Black and Green 1992: 121; Wiggermann 1992: 185-187; Seidl 1957-1971: 489; Braun-Holzinger 1987b: 97; Green 1994: 258.

<sup>13</sup> Braun-Holzinger 1987b: 97-99.

on its hind legs from the type standing on all fours (four-footed type). Generally, the feathered thigh of the hind legs or the feathers around the knees of the lion-dragon standing on its hind legs are emphasized and sometimes expressed as a projection, although projections or linear feathers can also be observed on some four-footed examples.<sup>14</sup>

The lion-dragon depicted in the art of ancient Mesopotamia has been interpreted as relating to the hybrid creature called Imdugud in Sumerian, or Anzû in Akkadian, which was killed by Ninurta (or Ningirsu) because it stole the tablet of destinies from Enki (Ea) in the Sumerian version or from Enlil in the Akkadian version. Imdugud was depicted as a heraldic lion-headed bird in the Early Dynastic period<sup>15</sup> and on Old Akkadian seals it was generally expressed as a bird-man arrested and brought to Ea (Enki)<sup>16</sup>. Asag (Asakku) in Sumerian poetry is also a monstrous demon defeated by the god Ninurta/Ningirsu (in another version by Adad (Iškur)). It is said to be hideously repulsive in appearance, while it was also expressed as a lion-dragon standing on its hind legs in Assyrian art<sup>17</sup>.

In the great Sumerian temple hymn of Gudea, ruler of Lagash, it is said that in a dream Ningirsu appeared as the lion-headed bird Imdugud (Anzû) to command the rebuilding of his temple E-ninnu<sup>18</sup>. Here we can see the change of the role of Imdugud (Anzû) from the victim to be defeated by Ningirsu (Ninurta) to the symbol of the existence of Ningirsu himself. In addition to the aspect as a warrior, Ningirsu (Ninurta) had a second aspect as a farmer, who gave detailed advice on cultivation through the year. This second aspect of Ningirsu might have been narrated in close context to that of Iškur/Adad, the god who embodied the power of storms, while he had another aspect as a beneficial god of fruitful rain and mountain streams important for agriculture<sup>19</sup>. Considering their close aspects, it is supposed that they could have possessed common symbols, such as the lion-dragon and the lightning bolt.

It is known that the beast of the Sumerian weather god Iškur is a lion-dragon, and that of his Akkadian equivalent Adad is a bull or lion-dragon<sup>20</sup>. On Old Akkadian seals, Adad stands on a lion-dragon<sup>21</sup>, while on Old Babylonian seals, Adad (depicted as a god with a

<sup>14</sup> Examples are seen on a Late Kassite carving and Old Akkadian seals, see Black and Green 1992: figs. 89, 100; Boehmer 1965: Taf. XXXI/372.

<sup>15</sup> Braun-Holzinger 1987a: 94-97. Many famous Sumerian examples are found such as those on the stone relief and the silver vase found at Girsu (modern Tello): Amiet 1977: 368, fig. 327; Parrot 1983: 167, 191, pl. 162, 184; a figurine made of lapis-lazuli and gold from Mari: Amiet 1977: 367, fig. 319; on a mace-head at Lagash: Strommenger 1964, pl. 70; on the front panel of the lyre from the tomb of Queen Pu-abi at Ur: op. cit.: pl. 79; Wooley 1934: pl. 104, etc. Rare example in the Babylonian period on the seals: Collon 1986: pl. XI/83 and seal impression CS 961 (Kt. g/k 173, h/k 273, i/k 59B) in Old Babylonian style found at Karum Kanesh. Another development combining with the concept of the double-headed eagle is seen in the Period of the Assyrian Trade Colonies in Anatolia: Özgüç, N. 1991: 306-307.

<sup>16</sup> Boehmer 1965: Taf. XLII/493, 495, XLIII/502. 503, 509, 510. 512. 513, XLIV/514-516, 519.

<sup>17</sup> Frankfort 1939: pl. XXXII/f (13th c. B.C.), XXXIV/1 (9-8th c. B.C.), XXXV/b (7-8th c. B.C.); Strommenger 1964: pl. 190.

<sup>18</sup> Black and Green 1992: 138.

<sup>19</sup> Black and Green 1992: 111, 138.

<sup>20</sup> Black and Green 1992: 111.

<sup>21</sup> As examples Boehmer 1965: pl. XXX/362-364, XXXI/367-374.

lightning bolt as on the Old Akkadian seals) mostly stands on a bull<sup>22</sup>. Only two examples of Adad with a lion-dragon are found on the Old Babylonian seals in the catalogue of the British Museum<sup>23</sup>, and one of them is an unusual example of the god sitting rather than standing on the back of the lion-dragon. In these examples, the lion-dragon with the weather god standing on it is the four-footed type.

The lion-dragon standing on its hind legs first appears in contest friezes on seals in the Old Babylonian period<sup>24</sup>. This motif cannot be found before the Ur III period, except one example with an irregular composition<sup>25</sup>. The lion-dragon standing on its hind legs is depicted in contest together with a lion, bull-man, hero, bull, or gazelle/goat in pairs or in triads. In worship scenes, the lion-dragon can be found in contest with a naked hero, bull-man, or gazelle/goat appears as the second motif<sup>26</sup>, or a filling motif<sup>27</sup>. It is difficult to read the meaning as a symbol of Adad or the myth of Anzû on these contest friezes, even though on one example, which is a worn and probably recut seal, a lion-dragon contesting with a rampant goat accompanies the weather god Adad<sup>28</sup>. However, it can be observed that this motif continued to be meaningful in the Assyrian art of the Middle and Neo-Assyrian periods<sup>29</sup>. In the Neo-Assyrian period, the myth of Anzû was revived and the lion-dragon standing on its hind legs was expressed as a demonic being chased by Ninurta or Adad on seals and on the stone relief from the temple of Ninurta at Nimrud<sup>30</sup>. Furthermore, it survived in the art of Achaemenid Persia<sup>31</sup>.

### The Lion-Dragon in Anatolia

As N. Özgüç has discussed<sup>32</sup>, many hybrid creatures can be observed in Anatolian art in the period of the Assyrian Trade Colonies. Examples have been reported from Karum Kanesh, Acemhöyük, Konya-Karahöyük, and other sites. Motifs of hybrid creatures must have been introduced to Anatolia together with the Sumerian and Akkadian myths through the Assyrian merchants' activities. Some of the creatures were depicted with strict fidelity to the original concept or iconographies, and others were adapted to Anatolian myths with small or large transformations, though it is not clear who engaged in creating Anatolian art such as seals.

<sup>22</sup> Collon 1986: pl. XXXII/447-450, XXXIII/452-455, 458-460.

<sup>23</sup> Rare example: Collon 1986: pl. XI/108, XXXII/451. The Old Babylonian seal found in the shipwreck at Uluburun bears a figure of four-winged lion-dragon in a worship or reception scene. However it was re-cut and inserted later in the Middle Assyrian Period (14<sup>th</sup> century B.C.). Collon 1989: 12-16.

<sup>24</sup> Collon, 1986: pl. V/7, 15, XIII/127, 128, 132-137, XXVI/349, XXXI/419, XXXII/441a.

<sup>25</sup> This seal was dedicated to Meslamtaea, lord of Lagaš, a god identified with Nergal in Kutha, in the time of Šulgi, see Collon 1982: 168, pl. LII/471.

<sup>26</sup> Collon 1986: pl. XIV/154, XIX/232, XXVI/349, XXXI/419.

<sup>27</sup> Collon 1986: pl. XII/120. XIX/234, XXII/278.

<sup>28</sup> Collon 1986: pl. XXXII/441a.

<sup>29</sup> Examples on seals of Middle Assyrian (13<sup>th</sup> century B.C.) and Neo-Assyrian (8<sup>th</sup>-7<sup>th</sup> century B.C.) periods in Frankfort 1939: pl. XXXII/f, XXXIV/a, XXXV/b; Strommenger 1964: pl. 186, 190.

<sup>30</sup> Black and Green 1992: 117; Pritchard 1969: 213, fig. 651.

<sup>31</sup> Frankfort 1939: pl. XXXVII/a, b.

<sup>32</sup> Özgüç, N. 1991.



a. CS259: Kt.d/k 8C, 29A, 52A, c/k 1637B



b CS742: Kt.n/k 1908B



c CS485: Kt.n/k 1779F



d. CS278: Kt.d/k 15C



e. CS495: Kt.n/k 1784A



f Kt.f/k 127

Fig. 4. Drawings of seal impressions from Kültepe-Kaniš karum.  
a-e: from Özgüç, N. 2006; f: drawn by the author.



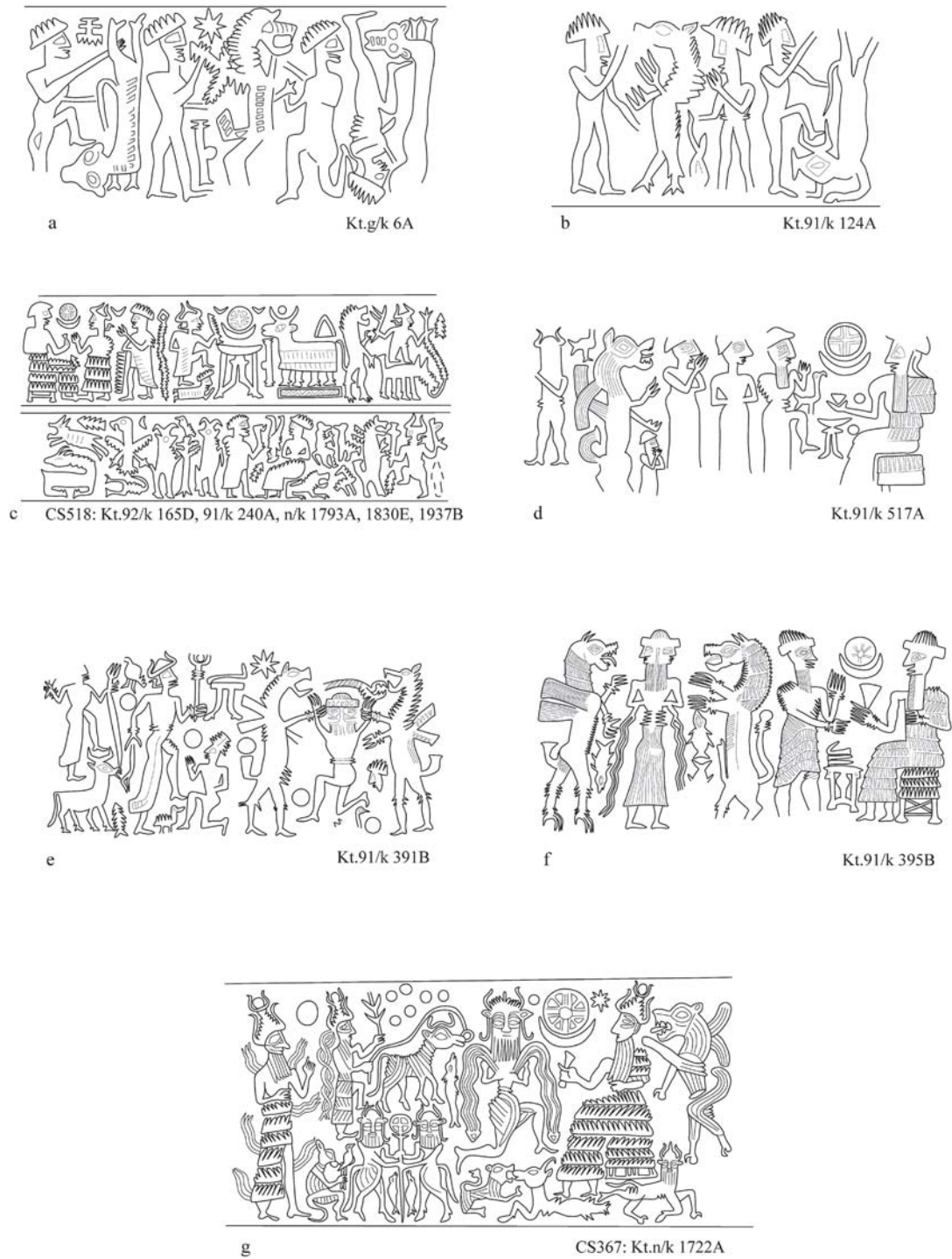


Fig. 5. Drawings of seal impressions from Kültepe-Kaniš karum.  
a, b, d-f: drawn by the author; c and g: from Özgüç, N. 2006.

The lion-dragon is one of the hybrid creatures introduced to Anatolia from Mesopotamia without any great changes in form<sup>33</sup>. This can be observed on cylinder seal impressions in Level II of Karum Kanesh, which is the first appearance of this motif in Anatolian art.

In the Hittite period, the lion-dragon disappeared from plastic art, probably because the bull had taken the place of the lion-dragon as the beast of the weather god and was sometimes even set in the place of the weather god Tešup himself<sup>34</sup>. After the Hittite period, the lion-dragon appeared again on Neo-Hittite stone reliefs, Urartu bronze objects, and Phrygian painted tiles and small objects of the first millennium B.C. All are in the four-footed style.

### The Lion-Dragon in the Period of Assyrian Trade Colonies

In the period of the Assyrian Trade Colonies, the lion-dragon motif is identified on seal impressions mostly found in Level II of Karum Kanesh. The four-footed lion-dragon mounted by Adad is identified on impressions of seals in the Old Assyrian style (Fig. 4a, b)<sup>35</sup> and of some in the Old Anatolian style (Fig. 4c)<sup>36</sup>, although the beast associated with Adad or the weather god is more commonly a bull in both these styles<sup>37</sup>. The four-footed type of lion-dragon is not observed on Old Babylonian seals found in Karum Kanesh at all. The four-footed lion-dragon in Old Assyrian style is very schematic, with just the outlines carved, reducing the complicated details, while the creature in Old Anatolian style is depicted in more detail, though its feet are simple and the talons are not depicted.

The motif of the lion-dragon standing on its hind legs is seen on seals in Old Babylonian, Old Anatolian, and Old Assyrian styles found in Karum Kanesh. Most of the seals were unearthed in Level II of the Karum and a few reused ones are from Level Ib<sup>38</sup>. The motif in the Old Babylonian style dominantly appears in contest friezes (Fig. 4d, e)<sup>39</sup>, and some appear as the second motif in worship or reception scenes (Fig. 4f), as in the Mesopotamian examples noted above. On a seal in Ur III style, a small rampant lion-dragon in Old Babylonian style was inserted later as a filling motif<sup>40</sup>. Among the seals in Old Assyrian style, in addition to the lion-dragons shown in contest friezes that are copies of Babylonian ones (Fig. 5a, b), a winged-lion faces the warrior god with a mace and an ax (Fig. 5c) and another one follows the gods and the worshipper facing the seated deity (Fig. 5d). In the worship or reception scenes in Old Anatolian style, a lion-dragon stands behind the seated figure of Ea (Fig. 5g), a lion-dragon and a lion face the two-faced god Usmû/Isimud in the presence of a seated god who is thought

<sup>33</sup> Özgüç, N. 1991: 301.

<sup>34</sup> Examples are found on the wall sculptures at Alacahöyük and the relief vase from İnandıktepe and others. Mellink 1972: fig. 2, pl. IV; Özgüç, T. 1988: pl. H/1, K.1, fig. 64.

<sup>35</sup> Özgüç, N. 1991: CS 259, 395, 407, 518, 562, 742; Kt. g/k 397B, i/k 59E.

<sup>36</sup> Özgüç, N. 1991: CS 485; Kt. g/k 174.

<sup>37</sup> Some examples of the bull mounted by Adad or Weather god. Özgüç, N. and Tunca 2001: CS 148, 183; Özgüç, N. 2006: CS 449, 522, 714, 748, 755, 815.

<sup>38</sup> Özgüç, N. 1968: pl. XXVI/2 (Kt. n/k 70), XXVIII/1 (Kt. r/k 106).

<sup>39</sup> Özgüç, N. and Tunca 2001: CS 109; Özgüç, N. 2006: CS 278, 333, 372, 437, 495, 519, 526, 914, 935, 1007, 1023, 1045, 1086, and others: Kt. 91/k 127B, 91/k 236A, 91/k 388C, 91/k 468.

<sup>40</sup> Özgüç, N. 2006: CS 661.

to be Ea (Fig. 5f), and a pair of lion-dragons attack a kneeling hero in the presence of a warrior god with a scimitar and a standard and a weather god on a bull (Fig. 5e). The talons and feathers on the hind legs are clear on the Babylonian seals but they are not depicted on most of the Old Assyrian style seals. As for the rampant lion-dragon on the three examples in Old Anatolian style, one (Fig. 5g) has no feathers or talons, the two winged-lions on another seal (Fig. 5e) have clear feathers but their feet are similar to those of the gods and the hero, and only one (Fig. 5f) is depicted with the all essential elements of the lion-dragon.

In Anatolia in the period of the Assyrian Trade Colonies, the lion-dragon standing on its hind legs is an essential motif of the contest frieze on Old Babylonian seals, and their copies were cut in Old Assyrian style. In Old Anatolian and Old Assyrian styles, the rampant lion-dragon attends to Ea or an unidentified seated god in worship or reception scenes, and also composes another scene with a warrior god. Although the pair of lion-dragons attacking a hero on Fig. 5e and the lion-dragon and a lion facing the two-faced god Usmû/Isimud on Fig. 5f could be patterns inspired from the contest friezes of Old Babylonian seals, it is remarkable that the lion-dragon on two of three seals in Old Anatolian style (Fig. 5f, g) is related to Ea, and on the other (Fig. 5e) is related to the warrior god.

While the four-footed lion-dragon mounted by Adad or the weather god in Old Anatolian and Old Assyrian styles keeps the Old Akkadian tradition, the rampant lion-dragon devised in the Old Babylonian period seems to have obtained new relations with Ea and the warrior god on the seals in Old Anatolian and Old Assyrian styles. However, considering that the god to whom Anzu is brought is Ea on Old Akkadian seals, and sometimes the lion-dragon could be related to Anzu in Mesopotamia, the composition in which the god Ea is accompanied by the lion-dragon on the Old Anatolian style seals is not quite new but is modified from Mesopotamian precedents.

Examining how the art of Mesopotamia was introduced to Anatolia, how strictly the introduced designs were faithful to the original iconographies, and to what degree the relation between form and concept was coincident with the original, makes it possible to understand the substance of Anatolian art in the beginning of the second millennium B.C. The motif of the lion-dragon provides an example of how forms and concepts were transformed when art or culture was introduced from one area to another.

The gold plaque found in Stratum IIIc at Kaman-Kalehöyük, which is thought to represent a lion-dragon, is a work from the period of the Assyrian Trade Colonies without any parallel example. Together with the seal impressions from Kültepe-Kanesh Karum, which provide the first examples of the lion-dragon motif in Anatolia, the gold plaque from Kaman-Kalehöyük is a significant example of Mesopotamian influences on Anatolian art.



## BIBLIOGRAPHY

- Amiet, P., 1977 — L'art antique du Proche-Orient. Paris: Editions d'art Lucien Mazenod.
- Black, J., and A. Green 1992 — Gods, Demons and Symbols of Ancient Mesopotamia. An Illustrated Dictionary. London: British Museum Press.
- Boehmer, R.M., 1965 — Die Entwicklung der Glyptik während der Akkad-Zeit. Untersuchungen zur Assyriologie und Vorderasiatischen Archäologie Band 4. Berlin: Walter de Gruyter & Co.
- Bossert, H.Th., 1942 — Alt-Anatolien. Kunst und Handwerk in Kleinasien von den Anfängen bis zum völligen Aufgehen in der griechischen Kultur. Berlin: Verlag Ernst Wasmuth.
- Braun-Holzinger, E.A., 1987a — Löwenadler. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 7: 94-97. Berlin, New York: Walter de Gruyter & Co.
- Braun-Holzinger, E.A., 1987b — Löwendrache. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 7: 97-99. Berlin, New York: Walter de Gruyter & Co.
- Collon, D., 1982 — Catalogue of the Western Asiatic Seals in the British Museum. Cylinder Seals II: Akkadian, Post Akkadian, Ur III Periods. London: British Museum Publications Ltd.
- Collon, D., 1986 — Catalogue of the Western Asiatic Seals in the British Museum. Cylinder Seals III: Isin-Larsa and the Old Babylonian Periods. London: British Museum Publications Ltd.
- Collon, D., 1989 — The Bronze Age Shipwreck at Ulu Burun: 1986 Campaign. II. Cylinder Seals from Ulu Burun, *AJA* 93: 12-16.
- Frankfort, H., 1939 — Cylinder Seals. A Documentary Essay on the Art and Religion of the Ancient Near East. London: Macmillan and Co.
- Green, A., 1994 — Mischwesen. B. Archäologie. Mesopotamien. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 8: 245-264. Berlin, New York: Walter de Gruyter.
- Maxwell-Hyslop, K.R., 1971 — Western Asiatic Jewellery c. 3000-612 B.C. London: Methuen & Co Ltd.
- Mellink, M.J., 1972 — Observations on the Sculptures of Alaca Hüyük. *Anadolu (Anatolia)* XIV: 13-27.
- Moorey, P.R.S., 1994 — Ancient Mesopotamian Materials and Industries. The Archaeological Evidence. Indiana: Eisenbrauns.
- Omura, M., 1996 — Cylinder Seals and Seal Impressions Excavated at Kaman-Kalehöyük. Essays on Ancient Anatolia and Syria in the Second and Third Millennium B.C. *Bulletin of the Middle Eastern Culture Center in Japan* 8: 193-207.
- Omura, S., 1999 — Preliminary Report on the 13<sup>th</sup> Excavation Kaman-Kalehöyük (1998). *Anatolian Archaeological Studies* 8: 1-78.
- Omura, S., 2000 — Preliminary Report on the 14<sup>th</sup> Excavation Season at Kaman-Kalehöyük (1999). *Anatolian Archaeological Studies* 9: 1-35.
- Omura, S., 2001 — Preliminary Report on the 15<sup>th</sup> Excavation Season at Kaman-Kalehöyük. *Anatolian Archaeological Studies* 10: 1-35.
- Omura, S., 2011 — Kaman-Kalehöyük Excavations in Central Anatolia. In: S.R. Steadman and G. McMahon (eds.), *The Oxford Handbook of Ancient Anatolia: 1095-1111*. Oxford: Oxford University Press.
- Omura, S., 2013 — Kaman-Kalehöyük'teki II. Binyıl Yuvarlak Siloları = The Round Silos at Kaman-Kalehöyük from the Second Millennium BC. In: Doğan-Alparslan, M. and Alparslan, M. (eds.), *Hititler: Bir Anadolu İmparatorluğu [Hittites: An Anatolian Empire]*: 290-295. İstanbul: Yapı Kredi Yayınları.
- Orthmann, W., 1971 — Untersuchungen zur Späthethitischen Kunst. Bonn: Rudolf Habelt Verlag.
- Özgüç, N., 1965 — Kültepe Mühür Baskılarında Anadolu Grubu = The Anatolian Group of Cylinder Seal Impressions from Kültepe. *TTKY* V/22, Ankara: Türk Tarih Kurumu Basımevi.
- Özgüç, N., 1966 — Acemhöyük Kazıları. *Anadolu (Anatolia)* X: 1-28, 29-52.

- Özgüç, N., 1968 — Kaniş Karumu Ib Katı Mühürleri ve Mühür Baskıları = Seals and Seal Impressions of Level Ib from Karum Kanish. TTKY V/25, Ankara: Türk Tarih Kurumu Basımevi.
- Özgüç, N., 1991 — The Composite Creatures in Anatolian Art During the Period of Assyrian Trading Colonies. In: Near Eastern Studies Dedicated to H.I.H. Prince Takahito Mikasa on the Occasion of His Seventy-Fifth Birthday, *Bulletin of the Middle Eastern Culture Center in Japan* 5: 293-317.
- Özgüç, N., 2006 — Kültepe-Kaniş/Neša Yerli Peruwa ve Aşşur-imitti'nin Oğlu Assur'lu Tüccar Uşur-ša-Iştar'ın Arşivlerine ait Kil Zarfların Mühür Baskıları = Seal Impressions on the Clay Envelopes from the Archives of the Native Peruwa and Assyrian Trader Uşur-ša-Iştar, son of Aşşur-imitti. TTKY V/50, Ankara: Atatürk Kültür, Dil ve Tarih Yüksek Kurumu.
- Özgüç, N., and Ö. Tunca, 2001 — *Kültepe-Kaniş Mühürlü ve Yazıtlı Kil Bullalar – Sealed and Inscribed Clay Bullae*. TTKY V/48, Ankara: Atatürk Kültür, Dil ve Tarih Yüksek Kurumu.
- Özgüç, T., 1988 — İnandıktepe, An Important Cult Center in the Old Hittite Period. TTKY V/43. Ankara: Türk Tarih Kurumu Basımevi.
- Parrot, A., 1983 — Sumer und Akkad. München: Verlag C.H. Beck.
- Paterakis, B.A., S. Omura, E. van Bork, 2014a — An Unusual Example of Gold Cloisonné from Central Anatolia. In: Symposium on Archaeometry in Los Angeles, CA in May 2014, abstract and poster.
- Paterakis, B.A., S. Omura, E. van Bork, 2014b — An Unusual Example of Gold Cloisonné from Central Anatolia. In: The 9<sup>th</sup> International Congress on the Archaeology of the Ancient Near East (ICAANE), Basel (Switzerland) in June, 2014 Abstract book: no. 270.
- Pritchard, J. B., 1969 — The Ancient Near East in Pictures Relating to the Old Testament, Second Edition with Supplement. Princeton: Princeton University Press.
- Seidl, U., 1957-1971 — Göttersymbole und -attribute. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 3: 483-490. Berlin, New York: Walter de Gruyter & Co.
- Strommenger, E., 1964 — The Art of Mesopotamia. London: Thames and Hudson.
- Wiggermann, F.A.M., 1992 — Mesopotamian Protective Spirits. The Ritual Texts. Groningen: STYX & PP Publications.
- Wiggermann, F.A.M., 1994 — Mischwesen. A. Philologisch. Mesopotamien. *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 8: 222-246. Berlin, New York: Walter de Gruyter & Co.
- Woolley, C.L., 1934 — Ur Excavations Volume II. The Royal Cemetery. London and Philadelphia.

## KING SAMSU-ILUNA'S FINANCIAL PROBLEMS. A New Text

Marten Stol

### *Abstract*

*The reign of the Old Babylonian king Samsu-iluna had its ups and downs. Best known are the revolts quenched by him, as he proudly relates in his inscriptions. He remains silent about his financial problems, the collecting of taxes and recovering outstanding debts. The two texts presented here show that he took action at last and some of his cities even had to sell property in order to pay him off.*

### INTRODUCTION

When contributing to Klaas Veenhof's anniversary volume in 2001, I published an Old Babylonian letter I had found in the Yale Babylonian Collection in 1977. At that time I also copied another text, which I then did not dare to publish because of its obscurities. Meanwhile, more is now known of the reign of Samsu-iluna and the time has come to confront Klaas with this second text as well. We owe to him excellent editions of unusual Old Babylonian texts, full of fine observations and thoughtful digressions, and he may have useful comments on this one as well.

### YBC 11041

The tablet has been described in Beckman, 2000: 224. Dimensions: 8,8 cm high, 5,5 cm wide, 2,7 cm thick.<sup>1</sup> Provenance unknown.

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<sup>1</sup> Published here by permission of W.W. Hallo, then Curator of the Yale Babylonian Collection. Ms. Ulla Kasten kindly provided me with photos of the tablet.

**Transliteration**

- (1) 21,3.0 ŠE-gur ù máš  
 ša a-na šu-HA id a-ra-aḫ-tum an-ta  
 PA <sup>d</sup>utu-ga-mil <sup>p</sup>gi-mil-lum dumu-é-dub-ba-a  
<sup>p</sup>hi-si-in-<sup>d</sup>iškur nu-bànda
- (5) PA MAR-TU <sup>d</sup>iškur-ri-im-i-lí  
 i-na mu kur-gú-si-a in-na-ad-nu-ma  
 mu-túm la ir-šu-ú  
 níg-ŠID in-ne-pu-uš-m[a]  
 ka-ni-kum la-bi-rum i[n-n]e-ši-ir-m[a]
- (10) a-n[a] [2]1,3.0 gur giš ba-rí-ga <sup>d</sup>marduk  
 ši-iq me-še-qí-im kab-ri-im  
 é-gal-im a-pa-lim  
<sup>p</sup>dutu-ga-mil PA.PA <sup>p</sup>gi-mil-lum dumu-é-dub-ba-a  
<sup>p</sup>hi-si-in-<sup>d</sup>iškur nu-bànda
- (15) <sup>p</sup>bur-sà-nu <sup>p</sup>a-bi-en-ši gudu<sub>4</sub>  
 ù ma-du-tum ka-ni-kam i-z[i]-b[u]
- (rev.) u<sub>4</sub>-um é-gal i-ša-ás-su-šu-nu-ši-im  
 ŠE-am é-gal-am i-ip-pa-lu  
 (ruling)  
 (blank space)  
 itu zíz-a u<sub>4</sub>-19-kam
- (20) mu u<sub>6</sub>-nir ki-tuš-maḫ  
<sup>d</sup>za-mà-mà-<sup>d</sup>inanna-bi-da-ke<sub>4</sub>  
 šu-gibil bí-in-ag A

**Translation**

21 kor, 3 PI of barley, including its interest,  
 which to the fishermen of the river district Upper Araḫtum,  
 — the chief: Šamaš-gāmil; Gimillum, junior scribe,  
 Ḫisin-Adad, the lieutenant;  
 the general: Adad-rīm-ili —  
 had been given in Samsu-iluna year 12, but  
 they did not acquire (it) as incoming goods:  
 the account was made and the old sealed document was annulled,  
 and for paying to the Palace the 21 kor, 3 PI of barley, measured according to the *parsiktum*-  
 measure of Marduk, according to the large standard,  
 Šamaš-gāmil, the colonel; Gimillum, junior scribe,  
 Ḫisin-Adad, the lieutenant,  
 Bursānu, Abi-enšim the priest, and the others, made out a sealed document.  
 At the time that the Palace summons them,  
 they will pay the barley to the Palace.  
 Date: 19.XI, Samsu-iluna year 22.

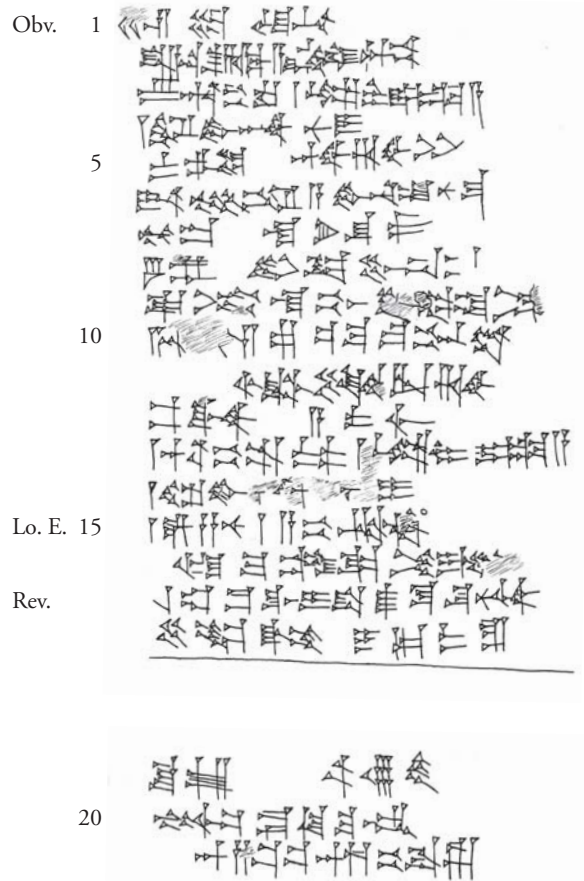


Fig. 1. YBC 11041, handcopy by author.



Fig. 2. YBC 11041 (photos © Yale University).



### Notes on the text

(1) The parallel text Riftin 89:2 (see below) offers *qadu* ‘together with, including’ (the interest). The word *u* in our text, ‘and’, can also mean ‘with’; W. von Soden, GAG § 114 i, end, AHw III 1397 s.v. *u* A 5 (‘zusammen mit’) (with the genitive).

(1-2) A text from Sippar begins with: (barley) *a-na šuku šu-HA is-ḥa-ti[m]*, ‘for the fishermen of the assignments(?) (plural of *isih̄tu*?)’, again followed by a military rank, PA.PA PN (CT 8 27b:4 f.). B. Landsberger interpreted *esih̄tu* (here *isḥat* [sic]) as ‘eine je nach dem Stande des leistenden Beamten oder Bürgers verschiedene Liturgie’, and here ‘möglicherweise die Fischereiabgabe’; Landsberger 1915, 502 f. with note 1. This text is not helpful and must refer to another situation; see Stol 2004, 820.

(2) The qualifications ‘upper’ and ‘lower’ after geographical names can indicate upstream and downstream, the North and the South, and are mostly written in Sumerian, an-ta and ki-ta. It is written in Akkadian in a prophecy in a Mari letter, *mātum elitum u šapl̄itum*, in this message: ‘The upper and the lower land have been given to Zimri-Lim!’, meaning: the entire country (ARM 10 10:15-18). The letters by king Hammurabi to his officers in the land of Larsa, just conquered, refer to this new province as *litum* ki-ta, ‘the Southern District’; Sîn-iddinam was his main representative there (AbB 13 8). The qualification ki-ta is attested in the names of several river districts:

(a) *id zubi* (or: *idigna*, the Tigris?), in *id zubi ki-ta*, Ellis 1977, 65, FLP 1738:4 (*lú uru. ki Ib-ra-<at> gú ki-ta id zubi*); Owen 2012, 451 f., Allegheny 25:5 (*šu-ti-a nērubātīm ša ki-ša-ad id zubi an-ta*); YOS 15 29:10 (field, *ša id zubi ki-ta*).

(b) *id Silakkum*, in *egir id Zi-lá-ku an-ta*, CT 45 121:3, cf. 5 (royal land).

In our letter it is the river Upper Araḥtum, a location attested once more, in a text from Kish: ‘The Upper Araḥtum, from its mouth and its water (*ù me-e-ša*) (?), (down) to the Gate of Ištar (of Babylon?)’ (Szlechter 1963, 83 UMM G 18:1-3, with Yoffee 1998, 323-325).<sup>2</sup> According to C. Wilcke, this stretch of water is hired for a ceremonial journey (*ḥarrānum*) by boat (Wilcke 1976, 86a).<sup>3</sup> The river Araḥtum is attested in Babylon and Dilbat; in Sippar only after the reign of Samsu-iluna.<sup>4</sup> Three Old Babylonian kings built their residences in Luḥāya, situated on the bank of this river, probably close to the capital.<sup>5</sup> We may assume that the Upper

<sup>2</sup> R. Pientka suggested *ša Me!-<sup>d</sup>En!-lil-E-TA*; Pientka 1998, 372 note 139. A parallel is the rental of ‘the tail’ of a canal, one double-hour long (*sibbat id GN bīram eq̄lim*), CT 8 8c:1-2.

<sup>3</sup> Context: Shehata 2009, 221 f.

<sup>4</sup> Pientka 1998, 458 (near Dilbat; also in Gautier, Dilbat 3, VAS 7 34:2, VAS 9 218:6, VAS 18 19:2, 23:11); Cole, Gasche 1995, 26 f., 32; also in CDOG 2 (1999) 100 f. Cutting reeds in its ‘mouth’ in a letter from Kish, AbB 1 52:13. A boat is hired for a trip from Babylon to ‘the mouth of Araḥtum’, TIM 5 59:12-15. In Sippar only in later years: OLA 21 no. 37:31, with Cole, Gasche 1995, 26. The early Sippar text mentioning this canal along ‘Broad Street’ may refer to Babylon; CT 8 34b:4 (= MHET II/1 117) (= VAB 5 202). The Araḥtu in first millennium texts: George 1992, 351-6.

<sup>5</sup> Pientka 1998, 220 f. (Abi-ešuh year v, Ammi-ditana year 20); RIME 4 (1990) 405, Abi-ešuh no. 1: 13-15 (first built by Hammurabi). According to two itineraries Luḥāya was situated between Babylon and Sippar; Oppenheim 1956, 312 K. 9197 x+3 and 313 Babylon 36383:4. Confirmed by a letter from Mari, ‘one double-hour to the North of Babylon’ (*elēnu Babilim eq̄lam bīram*), A. 3092:6-7, cited RA 97 (2003) 10 note 65-66 (D. Charpin).

Araḫtum, as viewed from Babylon, is to be identified with its northern branch, and that fits the location of Luḫāya. Incidentally, I consider Araḫtum to be a river, divine, not a canal, in view of the personal name Mār-Araḫtim, comparable with names like Mār-Purattim, etc. (Stol, 1991, 191).

(3, 5) Usually a man's name is followed by his title. Here the title precedes the name. This occasionally occurs in administrative texts. Unfortunately, I never paid attention to this feature and now I have no comments.

(4) The name Ḫisin-Adad is attested only here. *Ḫisin-* with simple *s* is exceptional; one expects *Ḫiṣin-*, 'protection'. A parallel Amorite name is known from Old Babylonian Ṭabatu: Ḫi-iṣ-né-e-<sup>d</sup>IM, the last witness in Tab T06-4, line 41; see Yamada 2008, 51, and CRRAI 54 (2012) 594. Another example is Ḫiṣni-Dagan, quoted by Huffmon 1965, 203 (examples from Terqa).

(7) (*ša*) mu-túm *la iršú* reminds one of the frequent expression (a debt) PN<sub>1</sub> ugu PN<sub>2</sub> *išú* (var. *rašú*), 'PN<sub>1</sub> has (var. got) a claim on PN<sub>2</sub>', often referring to the remainder of a debt, and this may fit our text. I will show this in a contribution due to appear at the same time as the present article (Stol forthcoming). Actually, arrears (*ribbatum*) are said to have been 'acquired' (*rašúm*).<sup>6</sup> The Sumerogram mu-túm stands for *šūrubtum* 'les apports (faits au Palais)' (J.-M. Durand) and it is rarely attested in the context of a letter. As such, it is seen only twice, in Mari.<sup>7</sup> The third case is our line, mu-túm *la iršú*.<sup>8</sup> Elsewhere mu-túm is just an administrative remark, very frequently used, meaning 'delivered by (PN)'. We will return to this line later.

(9) The cancellation of a debt and the nullification of its contract can be indicated by drawing two crossing lines over the clay tablet that records the debt; the creditor did this. In Akkadian, the verb *eṣēru* is used for this cancellation.<sup>9</sup> Private debts, but also obligations towards the Palace can be cancelled this way.<sup>10</sup> In our text we see the verb *eṣēru* in the N stem. In Mari texts one comes across this form in the formula 'Until the day the accounts are settled (*epēšum* N) this tablet remains available (*šakin*). Once they are settled, it will be crossed out (*inneṣṣer*)'.<sup>11</sup>

<sup>6</sup> AEM 1/1 (1988) 86 no. 6:8 (*mīnum nikkassūšu ša innepšūma u mīnum ribbatum ša iršūma*). Cf. arrears 'charged to' (*eli*), ABIM 11:18, UET 5 58:12-15.

<sup>7</sup> ARM 1 15:20 (*ina* mu-túm *maḥārim*) with a note in LAPO 16 (1997) 616 f., no. 432 (J.-M. Durand), and in Florilegium Marianum 2 (1994) 291 f. no. 131:11 (*šu-ru-ub-ta-ka*), 24 (mu-túm-*šu*), with note d (P. Villard).

<sup>8</sup> Note that in the heading of an Old Babylonian(!) roster of sheep we see the surprising verbal form *ub-lam* 'he brought here' (= mu-túm), followed by LALxU 'arrears' (MVN 5 299). This is a direct parallel to the bird's name *makkūr ubla*, Sumerian *níg-ga-mu-un-túm*, 'it brought wealth' (CAD M/1 133b).

<sup>9</sup> Veenhof 1995, 320 (quoting our text); Van Koppen 2001, 217 note 17 (*inneṣṣer*; Mari).

<sup>10</sup> Private: CT 6 6 (= VAB 5 281), CT 48 47, CUSAS 8 46, Stol 1999, 583, 588 (CBS 1153), TCL 11 222. Palace: CT 45 46 (summarized by Veenhof 1995, 320), and in *Palastgeschäfte*, BDHP 30, VAS 29 50-52, 68, YOS 13 354, 530, with *Journal asiatique* 270 (1982) 33 f., 39 f. (D. Charpin). Veenhof 1995 in his Addenda refers us to YOS 11 66, a crossed over incantation.

<sup>11</sup> ARMT 23 55-57, etc.; Van Koppen 2001, 217 note 17.



The combination *kanikum labirum* in this context reminds one of the substantive *labirtum* with the meaning ‘debt outstanding’, in CAD L 26, meaning 2.<sup>12</sup>

(13) The title *dumu-é-dub-ba-a* has always been considered to be that of a junior (*dumu*, ‘son’) scribe. M. Tanret reconstructed the career of Šumum-liši in Sippar and found that he kept this title until the end, and it might have been a higher rank than *dub-sar* ‘scribe’.<sup>13</sup> I made the same attempt many years ago, with similar results. On the other hand, the scribe Šamaš-ibni (from Dilbat) started as *dumu-é-dub-ba-a* and ended as *um-mi-a*.<sup>14</sup> I retain that in a military context (like here) he must be a junior scribe. Furthermore, in many instances he is the secretary of a high-placed person; thus *Sîn-inguranni*, the secretary of *Utul-Ištar*.<sup>15</sup>

(15) Bursanu: YOS 12 56:24 (Lower Yaḥrurum).

The last name *Abi-enšim* means ‘Father of the weak’, referring to a god. It is an abbreviation of a name like *Sîn-abi-enšim* (UET 5 537:23). Similar is the personal name *Ištar-um-mi-eništi* ‘Ištar is the mother of the weak (woman)’ (TCL 10 107:28, UET 5 95:2). The last sign is not clear: is it IM, the genitive ending of *enšum*, or is it *gudu*<sub>4</sub>? There was a priest named *A-bi-in-ši* *gudu*<sub>4</sub> Uraš, known from a Dilbat text (TLB I 235:4; Renger 1969, 144 § 184). Some have suggested to read there *Abi-enšim-Uraš*, interpreting the sign after *-ši* as IM, and not *gudu*<sub>4</sub>. However, the other names of this type do not have the god’s name at the end. The copy of our text suggests *gudu*<sub>4</sub> indeed.

This means that our text comes from Dilbat, and here arises a problem: how could the *Araḥtum* canal at Dilbat, to the south of Babylon, be called in this text ‘Upper’, northern? Or did the authority of some people in Dilbat extend so far?

(16) For *mādūtum* meaning ‘the others’ (of a group), see Stol 1993, 246 f. The word with this meaning is often attested in the texts from Lower Yaḥrurum.

(22) The last line, on the upper edge, was not copied, but is visible on the photo. The last sign A is abnormal. The same writing *šu-gibil bí-in-ag-a* (‘it was renovated’) is attested in Old Babylonian royal inscriptions: Warad-Sîn inscr. 16:19, Hammurabi inscr. 14:16 and 16:19-20; Attinger 2005, 252. This year name *Samsu-iluna 22* summarizes what the king relates in his inscription no. 6. De Meyer’s discussion of the variant *ki-bi-il* for *gibil* in the related royal inscriptions has been overlooked in current scholarship (de Meyer 1980, 85, to II 35).

## Commentary

The persons bearing these titles are not known to me from other texts, the only exception being *Abi-enšim*, the priest of *Uraš* in Dilbat (15). On the other hand, the river

<sup>12</sup> Note that CAD R 316a translates *ina LÁLxDÛ labirtim ḥarṣu* in YOS 12 110:3 as ‘deducted from (his) old arrears’. In CAD L 26a: ‘(the dates) are deducted from the arrears of the outstanding debt’.

<sup>13</sup> Tanret 2004, 33-62, esp. 44 f.

<sup>14</sup> *BiOr* 33 (1976) 153, in a review of R. Harris, *Ancient Sippar* (1975); and in *JCS* 25 (1973) 222 f. Overlooked by Tanret.

<sup>15</sup> Stol 2002, 746. More examples: *AbB* 9 154:14, *TCL* 1 157:75 (secretary of a judge), *YOS* 13 207:14, Dalley, *Edinburgh* 24:27.

district Upper Arah̄tum (2) would direct us toward the city of Luḥāya (see the note on line 2), attested in a letter from Lagaba (AbB 3 22:13). In his commentary on that letter, posthumously published, R. Frankena described its geographical context: Kish, Lagaba, Kutha, Babylon (Frankena 1978, 74 f.).

At first sight, the barley had been ‘given’ to the fishermen in year 12, but they had not received it (6-7). We will see in Riftin 89 (studied below) that barley could indeed be given on loan to communities. However, from the rest of the text it is clear that they are indebted with this barley, so they must have received it. There are two possibilities to solve this problem:

(a) the subject in line 7 still is the barley that had been given, and this line must mean that it had not yet been given back, lit. ‘it had not acquired the status of having been brought in’ (mu-túm *la ir-šu-ú*);

(b) the subject in the complex 1-7 changes from ‘barley’ to ‘they’ in line 7: *they* did not acquire (it) as incoming goods. The ‘they’ then must refer to the authorities who had issued the loan of barley.

In both interpretations the debt is still outstanding.

The text records an obligation towards the Palace contracted in year 12 of king Sam-su-iluna which is now, ten years later, renewed in his year 22. The collecting of barley from the fishermen was entrusted to their leaders, gentlemen with military ranks, which is not unusual among fishermen (lines 3-5, 12-14).<sup>16</sup> Such arrears are called *ribbatum* in Old Babylonian Akkadian; Sumerian LALxU, LALxDÜ (and variants).<sup>17</sup> The Akkadian word is written in singular and plural forms; we will always speak of arrears (plural) as is usual in English. The earliest discussion of this word suggested that the best translation in public context is ‘eine noch zu leistende Abgabe’, implying that this is not an obligation between private persons. Seventy years later, F.R. Kraus, after years of reflection, came up with this refined definition: ‘der noch nachzuliefernde, noch auszugleichende Fehlbetrag bei einer (regelmäßig wiederkehrenden) Leistung’.<sup>18</sup> In most cases the object of the arrears consists of goods, but they can be persons as well, particularly in the Mari texts. Two texts from Larsa from the time of Rim-Sin make an arrangement for providing workers, probably substitutes for people who were obliged to perform a corvée. If they stop working, the real corvée performers ‘will deliver the arrears as much as is claimed in the tablet of the Palace’ (*ribbatam mala ina tuppi ša ekallim iššassia* in-na-an-sum-meš), YOS 8 158:12-17, 175:10-16.<sup>19</sup>

<sup>16</sup> ‘Die Fischer’, in Stol 2004, 817-821.

<sup>17</sup> The reading *rib-bé-tum* in VAS 22 33:2, suggested by C. Wilcke in his review of VAS 22, is wrong. Read *daq-qá-tum* (silver scraps) *ana šutēmudi*, see Stol 2004, 904 note 1910. Confirmed by 10 ŠE (of silver) *mu-sú-ku-ú uš-te-mi-id-ma*, UET 5 34:13-15 (collated by J. van Dijk).

<sup>18</sup> Landsberger 1915, 499 f.; Kraus 1984, 316. A full discussion of *ribbatum* by Kraus 1958, 88-97.

<sup>19</sup> In May 1978 K.R. Veenhof gave Prof. Kraus and me this information: the quoted lines were collated by B.R. Foster and the signs are perfectly visible. The sign BI in *tu-pí-é-gal* is unusual, but it is BI rather than PI. Furthermore, Veenhof suggested that *i-ša-si-a* is the N-stem; accepted by CAD R 316b and Š/2 167b. Lastly, he interprets the texts as referring to (hired) substitute workers in a corvée. Let me add that both texts begin with *šu-ti-a* (175:1), here a variant of *šu-du<sub>8</sub>-a*, *šu-dù-a*, Akkadian *qātātum* ‘guarantee’.

In our text it is a large amount of barley. It is very well possible that the original obligation was about other goods, like fish, wool or cattle, often attested in texts about arrears. A letter of the time of Hammurabi shows that such an obligation could be converted into barley: ‘The chief herdsman M. makes available 300 kor of barley instead of the arrears of cattle he is responsible for (*kīma* LALxU [sic] *áb-gud-ḫi-a ša qātišu*)’, and the barley should be shipped to Babylon (AbB 2 37). It is likely that the Palace did not wish to be confronted with cattle but wanted to receive its value in barley. At the time of Hammurabi and in the early years of his successor Samsu-iluna, the Palace wished to receive silver as well, instead of the (often perishable) goods.<sup>20</sup> We have an informative letter by king Samsu-iluna to the authorities in Sippar (AbB 2 61). Šin-eribam, a courtier (*muzzāz bābim*), had ordered ‘the sons of Šunūma-ilum’ to ‘collect the *barley*, their arrears’, so they must have been the professionals *mušaddinum* who urged the tax payers to give (*nadānum* Š) their dues. From the following lines in the letter it is clear that the goods to be collected here was not barley, but three head of cattle and 30 shekels of silver. The text goes on by telling that these goods had been entrusted to Šu-Amurru for safekeeping (*ana mašartim ipqidū*). The king was informed about this and now, in this letter, he orders to have the *goods* sent to Babylon. The situation was exceptional and not the normal barley was delivered – so I presume. It is remarkable that this ‘entrusting for safekeeping’ occurs more often in texts about arrears.<sup>21</sup> Was this an intermediary stage between delivering the goods and converting them into barley or silver?

I have considered the possibility that the barley was not really ‘given’ to the fishermen but that it represents an existing debt they owed the Palace, converted into barley. Then, the amount of barley, arrears, was ‘given’ to the military to be collected and delivered to the Palace. In our text the actors are men with military ranks: a general, a colonel, a lieutenant, and a junior scribe. Interestingly, about thirty years earlier king Hammurabi instructed Šin-iddinam in Larsa that only the generals and colonels have the right to ‘give’ the ‘arrears of the cattle’ (*ribbat būlim*), not the lieutenants and soldiers (AbB 1 1). Already from the large amounts of barley in the letter AbB 2 37 and in our text it is clear that such arrangements were concluded in the higher levels of the administration; in AbB 2 61 a courtier initiated the procedure. A letter to the Overseer of Merchants speaks of ‘300 kor of barley, the *igisūm*-tax due from the innkeepers of Damrum, which is your responsibility (*ša qātika*)’, to be delivered to the Palace, and says that there might be delays (verb *uḫḫurum*) (AbB 14 87). Arrears to satisfy the Palace with (*ana ekallim apālim*) are known from other texts.<sup>22</sup>

Arrears were an eternal problem in the Babylonian administration, as is evident from this remark in a letter: ‘not to speak of his substantial arrears’ (*ezub ribbatišu matti*) (AbB 14

<sup>20</sup> ‘The central government in Babylon was interested in only two commodities, barley and silver (AbB 2 33)’, Stol 1982, 141, 144-8, following earlier scholars. A passage in a letter may refer to this conversion: ‘I have received the wool: (...) should it be converted into barley (*[šipātum] ana šē'im litūra*)?’; Sallaberger 2011, 76 no. 48:5-9. The following lines speak of collecting (*šuddunum*) barley from a man and from ‘the lady who is with you (*awiltam anummī[tam]* [sic])’. — *Tārūm* ‘to be converted into’ is known only from Old Assyrian; CAD T 260 f. (G), 278a (D).

<sup>21</sup> Stol 1976, 55:8-10 (the full formula); AbB 2 21:5-8 (*ribbatim* [of cattle] *ana pi-q[i-it-ti...]*).

<sup>22</sup> At the end of the division of an inheritance one reads the stipulation ‘for (any) arrear (claimed) by the Palace (...): it will not be PN’s responsibility (*ul awassu*).’ (MHET II/2 248:18 f., with copies on p. 335. Cf. no. 616).

34 rev. 4), or the Neo-Babylonian Gimillu, charged with collecting the outstanding payments of the herdsmen of Eanna at Uruk (*ša muḫḫi rēḫāni*) (Jursa 2004, 122-125). We will restrict ourselves to arrears indebted to the Old Babylonian state, the Palace.<sup>23</sup> King Hammurabi complained that arrears in paying the *igisûm*-tax of Larsa extended from his regnal years 36 to 39 (AbB 13 19). It has been observed that in Lower Yaḫrurum 'les arrières ne sont réglés que deux ou trois ans plus tard'.<sup>24</sup> In Sippar we see that wool 'from the arrears of the shearing shed' (*ša LALxDÛ ká zú-si.ga* [= *bāb buqūmim*]) had been given for collecting (*ana šuddunim nadnu*) in year 26 of king Abi-ešuḫ, but was received by the officials only in year 28 (CT 48 93).<sup>25</sup> King Ammi-šaduqa in his 'edict' speaks of unpaid debts from Ammi-ditana year 21 until the first year of his reign, sixteen years (§ 2) (Kraus 1984, 193).

#### RIFTIN 89

There is another, rather similar, text about collecting arrears for the Palace, Riftin 89. Here, to the mayor and the Elders of the city Namgata had been 'given' (N) the barley due over the years 12 and 13 of Samsu-iluna, the 'two years', which was collected (*nadānum* Š) later. The text, however, is dated ten years later! To Samsu-iluna year 22. Just like our text: arrears over year 12, and the assignment to pay is dated to year 22.<sup>26</sup>

#### Transliteration

- (1) níg-ŠID 60+5 ŠE-gur sag-du *ša* mu bàd 'ŠEŠ-AB' (?) ki  
     ù (sign KI) 51,3.1.2 (sila<sub>3</sub>) ŠE-gur *qá-du* máš-bi  
     *ša* mu ki-sur-ra ki  
     (ruling)  
     60+50+6,3.1.2 (sila<sub>3</sub>) ŠE-gur
- (5) *ša a-na nam-ga-ta* ki  
     *i-na* mu bàd ŠEŠ-AB ki *in-na-ad-nu-ma*  
     *i-na* mu kur-gú-si-a *uš-ta-ad-di-nu*  
     ù *i-na* mu kur-gú-si-a *in-na-ad-nu-ma*  
     *i-na* mu ki-sur-ra ki *uš-ta-ad-di-nu*
- (10) *ep-šu*      *šu-taḫ-ru-šú-ma*

<sup>23</sup> As in VAS 9 7-8 (= VAB 5 75A-B), about the yield of apples(!). Arrears and the *temple*: the sesame owed to the temple of Nanna in Ur in the group of letters UET 5 38, 56, and ABIM 11, with JAOS 99 (1979) 79 note 12, and AfO 27 (1980) 13a (1, 2) with note 57 (M. Gallery).

<sup>24</sup> Charpin 1981, 520; similarly JAOS 102 (1982) 162b (M. Stol). Compare, perhaps, AbB 14 70:13 (four years) and YOS 15 38:10 (three years). Among private people: [*ištu*] mu.4.kam *ribbatika*, ARN 77:12; arrears over four years owed to Princess Inibšina of Mari: Charpin 2008, 7, 12.

<sup>25</sup> Year aa (= 26), after Pientka 1998, 44 note 135 (collated).

<sup>26</sup> Incidentally, the Palace had to experience a much longer delay of 33 years in Sippar: in Hammurabi 34 a (commercial?) loan of two minas of silver had been given to the sons of L. and only in Samsu-iluna 24 it was satisfied by one branch of the family in a later generation (CTMMA I 50; partly explaining the related CT 2 27 and MHET II/3 442, with AfO 44-45 [1997-98] 354b [Els Woestenburg]).

- 12,4.1.2 (sila<sub>3</sub>) ŠE-gur  
 giš ba-rí-ga <sup>d</sup>marduk  
 LALxU mu kur-gú-si-a ù [mu ki-sur]-ra ki  
 ša mu.2.[ka]m
- (15) *i-na qá-at li-is-mi-...*  
*ra-bi-a-an nam-ga-ta ki*
- (rev.) *ù ši-bu-ut n[a]m-ga-ta ki*  
 'ŠE-a'-am ša i-na maš-gán *ú wa ra ak*  
*é-gal-am i-ip-pa-al-[m]a*
- (20) *ka-ni-ik-šu i-še-ep-pe*  
 (ruling)  
 (blank space)  
 itu gan-gan-è u<sub>4</sub>-28  
 mu *sa-am-su-i-lu-na* lugal-e  
 u<sub>6</sub>-nir ki-tuš-mah <sup>d</sup>za-mà-mà  
<sup>d</sup>inanna-bi-da-ke<sub>4</sub> šu-gibil bí-in x ag

### Translation

The account of 65 kor of barley, the original quantity, of Samsu-iluna year 11, and 51 kor, 3 PI, 1 seah, 2 qâ of barley, including its interest, of Samsu-iluna year 13 (ruling). (Total) 116 kor, 3 PI, 1 seah, 2 qâ of barley, which was 'given' to Namgata in Samsu-iluna year 11 and was collected in Samsu-iluna year 12; also, it was 'given' in Samsu-iluna year 12 and it was collected in Samsu-iluna year 13. Accounts settled, computations made. 12 kor, 4 PI, 1 seah, 2 qâ of barley, in the measure of Marduk: the arrears of Samsu-iluna years 12 and 13, of two years, the responsibility of Lismi-..., the mayor of Namgata, together with the Elders of Namgata. If he pays the Palace the barley which is in ..., his sealed document will be (made) invalid.

Date: 24.IX, Samsu-iluna year 22.

### Notes on the text

(1) The barley is the original amount, the 'principal' (sag-du, *qaqqadu*, in CAD Q 109-111 meaning (6).

(10) Formulas like this one often precede the quantity of the arrears that has been established, Stol forthcoming, 25. The first word, *epšu* 'done', refers to níg-ŠID in the first line, 'the account(s)'. They are settled (*nikkassī epēšum*). In a Sippar text the two words also stand far apart, five lines, in níg-ŠID *sābīm* (...) *epšu šutaḫrušū-ma* (CT 48 106:1, 6).

(13) maš-gán *Uwarak* is based on the copy.

(18) I read ŠE-a-am, not kù-babbar-am (so A.P. Riftin), in view of the copy and of related texts.

## Commentary

This text was discussed by Kraus 1984, 193 (with note 332), and by Charpin 2005, 139 note 18.

Kraus: ‘eine nicht genannte Amtsstelle hatte einem Dorfe in den Jahren Samsu-iluna 11 und 12 größere Posten Gerste geliefert, die sie sich in den Jahren Samsu-iluna 12 und 13 hatte zurückgeben lassen. Ein Rückstand von 11% soll dem ‘Palaste’ zurückgezahlt werden’.

Charpin: ‘Ce compte daté du 28/ix/Samsu-iluna 22 récapitule l’arrière dû par le maire et les Anciens de Namgata: un peu plus de 12 gur de grain, correspondant à un emprunt d’un peu plus de 116 gur de grain, effectué en deux fois, en l’an 11 et 12 de Samsu-iluna: il est intéressant de voir que des impayés pouvaient traîner ainsi pendant une dizaine d’années; on observera au passage que la *mīšarum* de l’an 17 de Samsu-iluna ne semble pas avoir affecté cette dette. On ignore ce que la municipalité fit de ce grain, mais, étant donné les troubles qui ont marqué les années 11 et 12 de Samsu-iluna, on songe à un secours alimentaire distribué à la population locale.’

Both authors agree that barley had been given on loan to a city. Such a practice is known from two Mari texts, ARM 8 56, ARMT 23 70; see Charpin 2008, 11, 13 f. Comparable is a loan of barley by the Palace to a district (*haṣum*) in need. Here, the king of Mari is asked ‘whether they should pay interest for the barley, or that at harvest time they should return just (*-ma*) the original amount (*qaqqadum*)’ (ARM 2 81 = ARM 27 76).

Looking at the two texts edited here, one can surmise that Samsu-iluna in his 22<sup>nd</sup> year decided to draw up the balance-sheet of all those outstanding payments. It may be rewarding to study all texts dated to this year, looking for other traces of his intervention. They can easily be collected, thanks to the French project ARCHIBAB on the internet.

Charpin commented: ‘On ignore ce que la municipalité fit de ce grain, mais, étant donné les troubles qui ont marqué les années 11 et 12 de Samsu-iluna, on songe à un secours alimentaire distribué à la population locale.’ On the same page, he points out that ‘arrears’ of cities were caused by construction works of fortresses or canals by the Palace, as three texts may say.<sup>27</sup> This work (*šiprum*) was done by corvée workers (*erén dusu*) and hired workers. ‘Faute de corvéables en nombre suffisant, il fallut embaucher des travailleurs, dont la rémunération fut mise au débit de la ville de Kâr-Šamaš’; ‘Mais en cas de défaillance, l’organisation palatiale recrutait des travailleurs salariés dont la rémunération était à la charge de la municipalité en faute’ – this is Charpin’s explanation.<sup>28</sup> Workers hired to do the corvée are attested many times, but mostly as replacements for individual performers of a corvée (Stol 1995, 296-303).<sup>29</sup>

<sup>27</sup> The passages are: MHET II/6 871:11-12 (a new canal in Jamutbalum) (Si 22); VAS 29 19:31 (work on the Arahtum canal) (Si 25); VAS 18 17:22 (the fortress Dūr-Apil-Sin) (Si 26). See Charpin 2005, 141 (H), 135 (I), 136 (J), with discussion, 138 f. Two texts are from Sippar and the third, MHET II/6 871, may originate from Bašum (or Ša Baši, see RIA s.v. Šapaza) in view of the god Bēl-šarbi in the oath.

<sup>28</sup> Charpin 2005, 139, 145 (‘bilan’).

<sup>29</sup> The combination *lú ḥun-gá dusu* is rare: in UET 5 268:1, quoted in CAD A/1 152a (*agru*), and in BM 97690:5, Hammurabi 34 (by courtesy of Els Woestenburg). The better known corvée workers *erén dusu* (*šāb tupšikkim*) may have included hirelings; see also Stol 1995, 298f. An important administrative text about payments for them,

Finally, in these three texts, the city had to sell immovable property in order to pay the Palace. They are dated to Samsu-iluna years 22, 25, 26, and it seems the sales by cities must have been the next step: they were not able to pay back the arrears and were forced to take drastic measures.

L. Pecha has studied letters in which kings complain about the arrears in paying taxes. He mentions only the ‘chambers of commerce’ (*kārum*) of cities as recipients of the taxes (Pecha 2008, 135, 140), but his conclusions are relevant: the letters are ‘ein Ausdruck der Verzweiflung und Resignation der Staatsgewalt’. With due caution he suggests that such situations may have been one of the factors that can explain the downfall of the empire of Babylon. The two texts presented here can be added to this file.

#### BIBLIOGRAPHY

- Attinger, P. 2005 — A propos de AK ‘faire’ (II), *ZA* 95, 208-275.
- Beckman, G., 2000 — Old Babylonian Archival Texts in the Yale Babylonian Collection. Catalogue of the Babylonian Collections at Yale, vol. 4. Bethesda, MD, CDL Press.
- Charpin, D., 1981 — La Babylonie de Samsu-iluna à la lumière de nouveaux documents, *BiOr* 38, 517-547.
- Charpin, D., 2005 — Chroniques bibliographiques. 5. Économie et société à Sippar et en Babylonie du Nord à l’époque paléo-babylonienne, *RA* 99, 133-176.
- Charpin, D., 2008 — Archivage et classification: Un récapitulatif de créances à Mari sous Zimrî-Lîm, in: *CRRAI* 51 (= *SAOC* 62), 3-15.
- Cole, S.W., Gasche, H., 1998 — Second- and first millennium BC rivers in Northern Babylonia, in: H. Gasche, M. Tanret, *Changing watercourses in Babylonia*. Ghent: University of Ghent, 1-64.
- De Meyer, L., 1980 — Documents épigraphiques provenant du sondage à Abū Habbah, in: L. de Meyer, *Tell ed-Dēr III*, 83-86.
- Ellis, M. de J., 1977 — Land of dead *redû’s*, in: *Essays on the Ancient Near East in memory of Jacob Joel Finkelstein*. Hamden: Archon Books, 61-66.
- Frankena, R., 1978 — Kommentar zu den altbabylonischen Briefen aus Lagaba und anderen Orten. SLB IV. Leiden: Nederlands Instituut voor het Nabije Oosten.
- George, A.R., 1992 — Babylonian topographical texts. OLA 40. Leuven: Uitgeverij Peeters.

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probably via middlemen (including the merchant Adad-iddinam, line 4), is BM 97262, Hammurabi 30 (Els Woestenburg). The total of silver was received from Ilšu-muballit, by Nabium-mālik. Note Nabium-mālik in the difficult text on corvée CT 48 64:2, 16, 18 (Hammurabi 38), with Stol 1995, 296 f.



- Huffman, H.B., 1965 — Amorite personal names in the Mari texts. A structural and lexical study. Baltimore: The Johns Hopkins Press.
- Jursa, M., 2004 — Auftragsmord, Veruntreuung und Falschaussagen: Neues von Gimillu, *WZKM* 94, 109-132.
- Kraus, F.R., 1958 — Ein Edikt des Königs Ammišaduqa von Babylon. *SDIOA* 5. Leiden: E.J. Brill.
- Kraus, F.R., 1984 — Königliche Verfügungen in altbabylonischer Zeit. *SDIOA* 11. Leiden: E.J. Brill.
- Landsberger, B., 1915 — Bemerkungen zur altbabylonischen Briefliteratur, *ZDMG* 69, 491-528.
- Oppenheim, A.L., 1956 — The interpretation of dreams in the Ancient Near East. Philadelphia: The American Philosophical Society.
- Owen, D.I., 2012 — Three early Old Babylonian accounts, in: *The Ancient Near East, a life!* Festschrift Karel van Lerberghe. *OLA* 220. Leuven: Uitgeverij Peeters, 445-456.
- Pecha, L., 2008 — Die Ohnmacht des Staatsapparates. Ein Beitrag zur Diskussion über die Ursachen des Untergangs des altbabylonischen Staates, *AoF* 35, 133-143.
- Pientka, R., 1998 — Die spätaltbabylonische Zeit: Abiešu bis Samsuditana: Quellen, Jahresdaten, Geschichte, Teil 1, 2. *IMGULA* 2/1-2. Münster: Rhema.
- Renger, J., 1969 — Untersuchungen zum Priestertum der altbabylonischen Zeit, 2. Teil, *ZA* 59, 104-230.
- Sallaberger, W., 2011 — Altbabylonische Briefe, in: M.P. Streck, *Die Keilschrifttexte des Alt-orientalischen Instituts der Universität Leipzig*. *LAOS* 1. Wiesbaden: Harrassowitz, 71-81.
- Shehata, D., 2009 — Musiker und ihr vokales Repertoire. *GBAO* 3. Göttingen: Universitätsverlag.
- Stol, M., 1976 — An Old Babylonian contract, *RA* 70, 55 f.
- Stol, M., 1991 — Old Babylonian personal names, *Studi epigrafici e linguistici sul Vicino Oriente antico* 8, 191-212.
- Stol, M., 1982 — State and private business in the land of Larsa, *JCS* 34, 127-230.
- Stol, M., 1993 — Biblical idiom in Akkadian, in: *The tablet and the scroll. Near Eastern studies in honor of William W. Hallo*. Bethesda: CDL Press, 246-249.
- Stol, M., 1995 — Old Babylonian *corvée* (*tupšik-kum*), in: Van den Hout 1995, 293-309.
- Stol, M., 1999 — Nach dem Gewichtsstein des Šamaš, in: *Munuscula Mesopotamica*. Festschrift für Johannes Renger. *AOAT* 267. Münster: Ugarit-Verlag, 573-589.
- Stol, M., 2000 — Personen um den König in altbabylonischer Zeit, in: *Ex Mesopotamia et Syria Lux*. Festschrift für Manfred Dietrich. *AOAT* 281. Münster: Ugarit-Verlag, 735-758.
- Stol, M., 2004 — Wirtschaft und Gesellschaft in altbabylonischer Zeit, in: D. Charpin, D.O. Edzard and M. Stol, *Mesopotamien. Die altbabylonische Zeit*. *Orbis Biblicus et Orientalis* 160/4. Fribourg: Academic Press, 641-975.
- Stol, M., forthcoming — The Old Babylonian 'I Owe You', in: *Silver, money and credit. A tribute to Robartus J. van der Spek on occasion of his 65<sup>th</sup> birthday on 18<sup>th</sup> September 2014*. *PIHANS* 128. Leiden: Nederlands Instituut voor het Nabije Oosten, 23-35.
- Szlechter, E., 1963 — *Tablettes juridiques et administratives de la III<sup>e</sup> Dynastie d'Ur et de la I<sup>re</sup> Dynastie de Babylone*. Paris: Recueil Sirey.
- Tanret, M., 2004 — The works and the days... On scribal activity in Old Babylonian Sippar-Amnānum, *RA* 98, 33-62.
- Van den Hout, Th.P.J., J. de Roos, 1995 — *Studio historiae ardens*. *Ancient Near Eastern Studies presented to Philo H.J. Houwink ten Cate*. *PIHANS* 74. Istanbul: Nederlands Historisch-Archaeologisch Instituut.
- Van Koppen, F., 2001 — Sweeping the court and locking the gate: The palace of Sippir-šerim, in: *Veenhof Anniversary Volume*. *PIHANS* 89. Leiden: Nederlands Instituut voor het Nabije Oosten, 211-224.
- Veenhof, K.R. 1995 — Old Assyrian *išurtum*, Akkadian *ešērum* and Hittite *GIŠ.ḪUR*, in: Van den Hout 1995, 311-332.
- Yamada, S., 2008 — A preliminary report on the Old Babylonian texts from the excavation of Tell Taban in the 2005 and 2006 seasons, *al-Rāfidān* 29, 47-62.
- Yoffee, N., 1998 — The economics of ritual at Late Old Babylonian Kish, *JESHO* 41, 312-343.
- Wilcke, C., 1976 — Inanna/Ištar, *RIA* V/1-2, 74-87.

## THE GODDESS WHO WAS ROBBED OF HER JEWELLERY. Ishtar and her Priest in an Assyrian Colony

Jan Gerrit Dercksen

### *Abstract*

*A sacrilegious incident involving members of the family of the priest of the goddess Ishtar in the Old Assyrian central colony Kanesh is reported to the priest in a letter. After a presentation and discussion of this document, the present article investigates the role of priests in Old Assyrian society and the evidence about sacred space in ancient Kanesh.*

### INTRODUCTION

Several cuneiform documents have survived that acquaint us with the jewellery and fineries of gods and goddesses.<sup>1</sup> These include lists from the Ur III period,<sup>2</sup> an Old Babylonian list about Ishtar of Lagaba (Leemans 1952), lists from Emar (Westenholz 2000, nos. 25-30) and Qatna, and documents relative to jewellery of Ishtar of Uruk dating to the Neo-Babylonian period (Beaulieu 2003). We have no such text for the Old Assyrian Colony Period, but the document to be presented here shows that Ishtar of Kanesh also possessed cloth and jewellery donated to her for her dress. A detailed list was made of her possessions in duplicate, which is referred to in text Kt c/k 18, a copy of a letter sent to Šu-Ištar, priest of Ishtar.<sup>3</sup> This letter is unique among the thousands of other texts from Kültepe Karum Level II in that it contains rare details about the practical aspect of the cult of this goddess. The tablet was excavated in 1950, and it is to be linked to a group unearthed in 1988.<sup>4</sup> Several documents from that group were published by Veysel Donbaz.<sup>5</sup> The sender of the present letter, Aššur-lamassi, is to be identified with Šu-Ištar's attorney (*rābišum*) named in the texts published by Donbaz.

<sup>1</sup> See the overview in Postgate 2009: 235.

<sup>2</sup> Paoletti 2012: 101.

<sup>3</sup> I wish to thank the Director of the Kültepe excavations, Fikri Kulakoğlu, for entrusting this tablet to me for publication. The final edition of this text will appear in the series *Kültepe Tabletleri*.

<sup>4</sup> Kt c/k 18 was found in or near N-P/20. Texts Kt 88/k 970-1136 were excavated in quadrant U/12 according to the information in *Kültepe Tabletleri* (abbreviated AKT) VII-a: 36. This quadrant comprises the house numbered 61 by Hertel (2014: 31 map, 47).

<sup>5</sup> The texts published in Donbaz 2008 are Kt 88/k 970, 971, and 972. See the Appendix to the present article for collated transliterations and translations. It is uncertain whether two other texts, Kt u/k 3 and Kt u/k 4, refer to the same Šu-Ištar. Kt u/k 3 is a letter sent to Šu-Ištar by Aššur-rabi; Kt u/k 4 is a letter to Šu-Ištar from Mannum-balum-Aššur and Belum-bāni. It appears from these texts that Šu-Ištar and his son Aššur-rabi were involved in trade like most other men in Old Assyrian society; the father had textiles as *ikribu* (Kt u/k 3:2) and quantities of copper were stored in his house according to Kt u/k 4.

## THE PRIEST AND HIS FAMILY

Šu-Ištar was married in Kanesh to a woman by the name of Watniašwe, who is called his maid (*amtum*) in Kt c/k 18, but elsewhere his wife (*aššutum*).<sup>6</sup> Despite her Anatolian name, she may have been of Assyro-Anatolian descent. Šu-Ištar had four sons: Abiya, Nimar-Ištar (called Nur-Ištar in TPAK 1, 105), Aššur-imitti, and Aššur-rabi. The reference in AKT 5, 24:2 to a son called Iddin-abum could be to a fifth son or the formal name of the hypocoristic Abiya used elsewhere.<sup>7</sup> Abiya and some or all of his brothers had Watniašwe as their mother.

Šu-Ištar possessed a house in Kanesh, part of which may have served as the sanctuary of Ishtar. The household had a senior servant (*wardum*) named Ewrimuša and an unknown number of slaves and slave-girls.

## THE TEXT

Kt c/k 18 has the AMM inventory number 154-18-64; the tablet measures 8.6 x 5.4 x 1.8 cm. The lower left corner is broken off (see Fig. 1).

## Transliteration

- 1 *a-na šu-ištar ah.me ša ištar*  
*qí-bi-ma : um-ma a-šùr-lá-ma-sí*  
*ní-mar-ištar ú<sup>d</sup>im-gal-ma*  
*i-na u<sub>4</sub>-mì-im : ša dumu áp-lim*
- 5 *i-li-kà-ni : a-na ma-lá*  
*na-áš-pè-er-tí-kà : a-šùr-gal*  
*ú me-er-at : i-na-ah-dingir*  
*i-na é be-tí-kà : ní-ìt-ru-ud-l ma*  
*wa-at-ni-a-ší : a-ma-at-kà*
- 10 *ú a-šùr-i-mì-tí : me-ra-kà*  
*a-na é be-tí-kà : nu-šé-ri-ib-ma*  
*ku-um-ru-tám : tù-kà-al*  
*a-šùr-gal : a-na kà-ri-im*  
*i-li-ik-ma : um-ma šu-ut-ma*
- 15 *a-bi<sub>4</sub> : iš-pu-ra-ma : i-na*  
*é be-tim : ú-sí : 5 dumu-e*  
*um-me-a-ni : be-ra-ni-ma*  
*il<sub>5</sub>-tám : ú šu-ku-ta-ša : lá-áp-qí-id-l ma*  
*ú lu-sí : 5 <dumu>-e : um-me-a-ni*

<sup>6</sup> Kt 88/k 970 and TPAK 1, 105:5.

<sup>7</sup> Puzur-Ištar, who is identified as a son of the priest of Ishtar in Kt 94/k 173:2' (see AKT 5: 122), was perhaps another son of Šu-Ištar; a Puzur-Ištar is mentioned in Kt 88/k 972:53, see below.

- 20 [kà-ru-um] : i-be-er-šu-ma  
 [il<sub>5</sub>-tám] ʾú ʾ šu-ku-ta-ša  
 [ip-qí-i]d-ma : šal-ma-at  
 lo.e. [mì-ma š]a : šu-ku-«nu»-tí  
 [il<sub>5</sub>-tim] lu kù.babbar lu kù.ki  
 rev. 25 [lu a-mu-tum] : lu sá-dum  
 [x x x] ʾni ʾ : 1 ʾup-pá-am  
 [be-ru]-ú : ú-lá-pì-tù-ma  
 [a-n]a am-tí-kà : i-dí-nu  
 [ʾ]up-pu-um : ša-ni-um : me-EH-šu  
 30 é kà-ri-im : i-ba-ši  
 a-ma-at-ʾkà ʾ ni-mar-ištar a-šur-i-l/mì-tí  
 ú e-ME-ri-mu-ša : ša é / be-et-kà  
 ú-kà-lu-ni : ša-al-tum  
 i-na ba-ri-šu-nu : i-ši-ki-in-ma  
 35 a-sàʾ (written over erasure)-ku-um : ša il<sub>5</sub>-tim : i-ta-dš-me  
 a-na kà-ri-im : i-li-ku-ma  
 be-re (written over erasure) : pá-ni-ú-tí-ma : kà-ru-um  
 a-na il<sub>5</sub>-tim : a-ša-ri-im  
 iš-pu-ru-ma : šu-ku-tí : il<sub>5</sub>-tim  
 40 ú-sà-ni-qú-ma : 12 a-<nu>-qú-ú : ša a-l/mu-tim  
 ša úz-né-ša : 1 ½ gín  
 ú-ru-um ša kù.ki 2 zi-mì-zu  
 ša kù.ki ša 2/3 gín  
 ½ ma-na kù.babbar : tù-dí-na-tum  
 45 17 kà-ku-bu-ú ša kù.babbar  
 kà-ku-um ša 5/6 gín ša kù.babbar  
 u.e. lu sá-dum : lu hu-sà-ru-um  
 ½ ma-na 5 gín  
 l.e. ší-ku-tum ša i-ir-<tí>-ša : mì-ma a-ni[m]  
 50 ha-lá-aq : kà-ru-um : ú-sà-ni-i[q-šu-nu]  
 um-ma šu-nu-ma : ke-na ni-il<sub>5</sub>-q[é x x x]

### Translation

- (1-3) To Šu-Ištar, the priest of Ishtar, this is what Aššur-lamassi, Nimar-Ištar and Adad-rabi said:
- (4-12) The day the son of Aplum arrived we chased Aššur-rabi and the daughter of Inah-il out of your house in accordance with your written order; then, we brought your *amtum*-wife Watniašwe and your son Aššur-imitti into your house and she is in possession of the attributes of priesthood.
- (13-19) Aššur-rabi went to the colony and said: “My father sent me a message to leave the house. Select for me five independent traders so that I can entrust the goddess and her jewellery and leave.”

- (19-22) The colony selected five independent traders for him and he entrusted the goddess and her jewellery; she is fine.
- (23-30) [...] the *jewellery* of the [goddess], be it silver or gold [or meteoric iron] or *sādum* gold ... – the selected men wrote (it on) a tablet and gave that to your *amtum*-wife. A second tablet, a copy of it, is at the Office of the Colony.
- (31-35) A dispute arose among your *amtum*-wife, Nimar-Ištar, Aššur-imitti and Ewrimuša, who are in possession of your house, and the taboo of the goddess has been heard.
- (36-40) They went to the colony and the colony sent the same men as previously selected to take care of the goddess; they checked the jewellery of the goddess (with this result):
- (40-50) 12 earrings of meteoric iron; 1 ½ shekel (ca. 12.5 g), a (representation of a) pudendum of gold; 2 beads of gold of two-thirds of a shekel (ca. 5.5 g); half a mina (ca. 249 g) of silver: toggle-pins; 17 stars of silver; a mace of 5/6 shekels (ca. 6.9 g) of silver; (beads of) either *sādum* gold or lapis lazuli weighing 35 shekels (ca. 290.5 g), (forming) the string of beads on her chest – all this is lost. (50-51) The colony cross-examined [them] and they replied: “Yes, we took (it).”

## Notes

4. Aplum as a personal name occurs in the Old Assyrian material only here and in Kt 88/k 970:86 (the same person). The apparent absence of Aplum in Middle Assyrian texts suggests it remained a foreign name to Assyrians. It is well attested in texts from Old Babylonian Larsa, however. So this “son of Aplum” may have been an Assyrian of Babylonian origin. He apparently brought Šu-Ištar’s written instruction from Assur. The sign LIM has a clear horizontal in Kt 88/k 970 (see photo of the reverse in Donbaz 2008: 212) and an awkward one in Kt c/k 18.

7. It appears from Kt 88/k 1095, cited by Veysel Donbaz (1996: 189 fn. 30), that this daughter of Inah-il was called Alala. According to this text she was to remarry another man: “Seal of the Kanesh colony in plenary assembly. The Kanesh colony in plenary assembly passed the following verdict: (As for) Alala, daughter of Inah-il, wife of Aššur-rabi son of Šu-Ištar, they will give her today to a husband.”

12. The abstract *kumrutum* is otherwise unattested.

17. For another group of “selected men” (*bēru*) sealing a container with 20 golden statuettes, see AKT 5, 46:14.

18. The word *šukuttum* denotes the jewellery of a goddess or a woman, see also Charpin 2012: 81 fn. 63. In Kt 2001/k 325a:19 // b:24 (Albayrak 2004) the word denotes the jewellery of a *gubabtum*-priestess.

25, 47. For *sādum*, until now only attested in texts from the first millennium, see AHW 1002b *sādu* II “eine Goldlegierung?”; CAD S 20b *sādu* B “(an alloy of gold)”. It is made into rosettes (*ayyaru*) and small lions according to Neo-Assyrian (SAA 7, 60:5) and Neo-Babylonian texts, e.g. in YBC 4174, 10-11: 41 ur.mah.meš kù.gi šā sa-a-du tur.me, 31 a-a-ri kù.gi sa-a-du, “41 small lions of *sādu* gold; 31 rosettes of *sādu* gold”, for which see Beaulieu 2003: 146; 386.





Fig. 1. Tablet Kt c/k 18 (photos by the author).



If *sādum* gold was used in order to imitate carnelian (see note to line 49) this might provide a clue as to its colour.

35. The *asakkum*, literally “taboo”, of the goddess refers to her jewellery; cf. CAD A/2, 327a for the use of *asakkum* to denote consecrated property. See also Durand 1991: 55 (M.7322:24’) and Durand 2008: 425. Other occurrences can be found in ARM 32, p. 216 and 227. For the use of *kù.dingir* (the Sumerogram for *asakkum*) in Ur III, see Sallaberger 1993: 237, where it is translated “Schatz der Gottheit”. The *asakkum* of the gods of Kanesh is mentioned in Kt 92/k 393:15, see Erol 2015: 63 fn. 19.

40. Part of lines 42-44 is quoted in Çeçen 1997: 220 fn. 13. The qualification “of her ears” makes it clear that the word following the numeral was a type of earring. This word could be read as on the tablet, yielding an otherwise unattested form *a-ku-ú*, which one may compare to another unclear word, *akku*, in ARM 22, 323 = ARM 32, p.442: (14)  $\frac{1}{3}$  su *kù.gi* (15) *ki.lá. bi 2 a-ak-ki*, “one-third shekel (less than 3 g) of gold, weight of 2 (perhaps a pair of) *akku*”. To take it as meaning *agûm* “diadem” is unlikely, and a form *agû* would be expected. A more plausible solution seems to assume a scribal error for *annuqû* (*a-<nu>-qû-ú*), the Old Assyrian form of Babylonian *unqum*. That word normally means a ring for the finger, but here it has the qualification “of her ears”; the combination *unuq ubānim* “ring of the finger” in some texts from Mari (ARM 32, p.102) suggests that an *unqum* was not necessarily worn on the finger. Support for this interpretation and a fine parallel to the Old Assyrian expression in lines 40-41 can be found in the Old Babylonian text BM 97075:10, *a-na-ka-tum kù.babbar ša uz-ni-ša*, cited in Stol 2013: 90 *unqu*. It is unclear whether the objects were made of *amutum* (as *annuqu* often were) or of gold inlaid with *amutum*, like the “two earrings with lapis lazuli (inlay)” in BIN 6, 179.<sup>8</sup> No weight is indicated for the rings,<sup>9</sup> or for the 17 silver stars in line 45.

The earrings found during excavations and those depicted on terracottas and in iconography from the Old Babylonian period and earlier are mainly circular or pendant.<sup>10</sup> Pendant rings are often lunate-shaped and may have as many as three lobes, as do some of the earrings from Assur Grave 20.<sup>11</sup> These fluted earrings could have stone inlays (e.g. lapis lazuli, obsidian), similar to some of the circular rings (BIN 6, 179). Larger and complex pieces of gold jewellery with pendants suspended from chains were excavated in Troy and Eskiypar and date to the Early Bronze Age.<sup>12</sup> That men also wore gold earrings is now confirmed by items from a 21<sup>st</sup> century BC grave at Kültepe (2010/tepe M1), where a male (presumably a merchant) had been buried.<sup>13</sup> The male deity depicted in relief on gold foil found in Level Ib is also wearing a large circular earring.<sup>14</sup> Native terminology for earrings is scarce: *níg.geštu* seems to be the only word used in Ur III Sumerian documents (see Paoletta 2012: 141; they weighed between

<sup>8</sup> BIN 6, 179: (5’) *ši-ta i-ša-ab-ta-an* (6’) *ša na<sub>4</sub>.za.gìn*.

<sup>9</sup> For weights attested for earrings in texts from Mari, see ARM 32: 78-79.

<sup>10</sup> Maxwell-Hyslop 1971: 84-87. For criteria to distinguish between the circular (*boucle d’oreille*) and pendant earrings (*pendant d’oreille*), see Nicolini 2010: 118. Earrings are also discussed in Stol 2012: 28-29 with notes on p. 433.

<sup>11</sup> See catalogue nos. 35 and 36 in Benzel *et al.* 1995, where the triple-lobed earrings (nos. 35c-d) weigh 6.14 and 6.24 g.

<sup>12</sup> Tolstikow and Trejster 1996, nos. 13-16 (*Körbchenohrring mit Gehänge*); Özgüç and Temizer 1993: 614.

<sup>13</sup> H. Üstündağ during the Second Kültepe International Meeting, 29 July 2015.

<sup>14</sup> Kulakoğlu 2008: 13.

1.8 – 5 g); the Akkadian word *alīṣabtu* seems to denote a circular earring, to be worn either on the finger or the ear. The occurrence of both words in text TSKP 115 from Uruk (Sana-ti-Müller 1990) demonstrates that they denoted different types. Old Assyrian texts (like Old Babylonian) often do not use these words, but instead have (gold) *ša uznē* “of (one’s) ears”.<sup>15</sup> Some merchants’ daughters wore much gold to demonstrate their father’s wealth, as in AKT 2, 54: (25)  $\frac{1}{2}$  *ma-na* 3 gín kù.ki (26) *i-na ú-za-an* (27) *šú-ha-ar-té-en ša-ki-in*, “33 shekels of gold has been attached to the ear(s) of the two girls”. Each of these girls had about 68 g of gold jewellery suspended on each ear. A girl in AKT 6a, 104 possessed gold earrings weighing at least half a pound altogether.

42. This reference to *ūrum* has been wrongly listed under *urû* D in CAD U/W 260b. A metal representation of the pudendum was often used as a votive offering to Ishtar and other female deities and stresses the aspect of fertility. Some of these objects were retrieved during excavations in the Ishtar temple in Assur, see Bär 2003: 157-160. Golden *ūru* are mentioned as votives for several manifestations of Ishtar in Kt 94/k 1296 (Barjamovic and Larsen 2008: 152).

44. Paoletta (2012: 155) notes that silver *tudittu* mentioned in Ur III texts usually weighed 3 shekels.

46. The silver mace (*kakkum*) may have represented one of the maces that protrude from Ishtar’s shoulders. The inventory AKT 6b, 468 (Kt 94/k 670) includes “5 maces” (5 *kà-ku-ú*).

49. *Šikkūtum* is a “string of beads”. This particular multicolored necklace consisted of blue, thought to represent divinity, and textured gold which was used instead of carnelian to render the colour red. For the symbolism of these colours, see Winter 1999 and Zanon 2012: 224.

50. For the stative form *halaq* beside *haliq*, see Kouwenberg 2010: 162.

51. The end this line is broken off, but may have contained more writing after *-q[é]*. The form *nu-ta-ar* “we will return (it)” then suggests itself in view of the similar structure in Kt 88/k 971:49-57 and Kt 88/k 972:26-38 (*sannuqum*, items missing, confession and promise to return the missing items).

## THE EVENTS

The small dossier currently available about Šu-Ištar and his family contains references to a number of events. The background to many of these is often obscure and we will have to await the publication of related Kt 88/k texts for possible clarification.

The reason why Šu-Ištar was staying in Assur for at least three years is not mentioned. He may have gone there in connection with his priestly function or for business purposes, or for both. He approached the city assembly in Assur and obtained permission to engage several attorneys equipped with the necessary official documents (called tablets of the city) in support of their mission. The grounds for action that are mentioned in the letters and protocols are

<sup>15</sup> Requests to send gold for earrings occur in, for example, BIN 6, 179:8’ (*ana uznēya*); KTS 2, 23:13 (*ana uzan šabharātīm* “for the ears of the girls”).

largely financial. During his absence, his wife and sons in Kanesh mismanaged the household there and incurred debt, an example of which is recorded in TPAK 1, 105. The orders given to the no less than three attorneys hired by Šu-Ištar involved collecting his assets and deporting his son Aššur-rabi and the servant Ewrimuša to Assur.

The tentative chronological order of the available documents is Kt c/k 18, Kt 88/k 972, Kt 88/k 971, and Kt 88/k 970. Šu-Ištar is staying in Assur, and his son Aššur-rabi and his son's wife were living in his house in Kanesh. The son seems to have been responsible for the statue of Ishtar and her jewellery. By order of Šu-Ištar, Aššur-lamassi drives out Aššur-rabi and the son's wife and settles Watniašwe and Aššur-imitti in the house (Kt c/k 18). According to Kt 88/k 972, the house was inhabited by Watniašwe, some unidentified sons of Šu-Ištar and by his representative Asqudum.<sup>16</sup> They are driven out by Aššur-lamassi and Adad-rabi and perhaps also by Nimar-Ištar. Kt 88/k 971 contains a reference to the effect that Aššur-lamassi drove out Nimar-Ištar and Aššur-imitti. Finally, Nimar-Ištar and Aššur-imitti do not inhabit the house according to Kt 88/k 970, whereas their brother Aššur-rabi apparently does.

Kt c/k 18: Copy of a letter sent to Šu-Ištar by Aššur-lamassi, Nimar-Ištar and Adad-rabi. "When the son of Aplum arrived" the senders ousted Aššur-rabi and wife from the house in Kanesh and installed Watniašwe and Aššur-imitti there. The statue of Ishtar and her jewellery were checked by a committee appointed by the colony, who recorded its findings on two identical tablets. Subsequently, the new inhabitants had a dispute and part of the jewellery was stolen. Theft of temple property usually was severely punished in Mesopotamia, but it is unknown what consequences this particular incident had. This important episode does not play any role in the following documents.

Kt 88/k 972: Copy of a letter sent to Šu-Ištar by Aššur-lamassi, Nimar-Ištar and Adad-rabi. "When your attorney Aššur-lamassi arrived here" the senders of the letter entered the house, which was occupied by Watniašwe and her son and the representative (*šazzuztum*) Asqudum. Having entered they obtained only 4 2/3 minas of silver and 15 jars of oil and 45 sacks of grain. The household utensils were all given in pledge. Watniašwe and Aššur-rabi were brought before the colony for questioning and both declared that they would repay what they had taken. Watniašwe had many debts when she left the house and she and Aššur-rabi refused to re-enter it. Creditors put pressure on them to surrender the house.

Kt 88/k 971: Draft of a protocol. Dispute between Nimar-Ištar and Aššur-imitti and their father's attorney, Aššur-lamassi. Nimar-Ištar and Aššur-imitti vs. the attorney Aššur-lamassi, one year after Šu-Ištar had engaged the attorney. Nimar-Ištar and Aššur-imitti want to appeal to the court in Assur. They remind Aššur-lamassi that the reason why their father engaged him was to collect silver and gold. They demand from him to present this silver to the colony and bring it to Assur and to take Aššur-rabi along. Next, they complain that Aššur-lamassi has driven them out of the house, although they were representatives. The two brothers express the wish to go to Assur immediately and settle the case before Šu-Ištar. In his reply, Aššur-lamassi accuses them of having made a mess of their father's house already before he arrived in Kanesh. He stresses that he brought the two brothers, Watniašwe and Aššur-rabi

<sup>16</sup> It is uncertain whether he is the same as Asqudum son of Aššur-bani, who sealed the bulla Kt 88/k 1058, published in Özgüç and Tunca 2001: 335.

before the colony, where it was established what had been taken. Following this, Watniašwe and Aššur-rabi declared that they would return everything. Aššur-lamassi stated that he did not take anything apart from  $4 \frac{2}{3}$  minas of silver and 15 jars of oil.

Kt 88/k 970: Draft of a protocol. Dispute between Watniašwe (represented by Saha) and Abiya and the attorney Aššur-lamassi. Saha (for Watniašwe) and Abiya begin their interrogation of Aššur-lamassi by summarizing his activities on behalf of Šu-Ištar during the past three years. Aššur-lamassi had been instructed to arrest Aššur-rabi and Ewrimuša and to make them return all they had taken. Despite Aššur-rabi's offer to pay  $1 \frac{1}{2}$  talents of silver and go to Assur, Aššur-lamassi had made common cause with him. Subsequently, two other attorneys arrived in Kanesh and they acted in accordance with the instructions given by Šu-Ištar. Saha and Abiya demand that Aššur-lamassi bring Aššur-rabi to Assur. In his reply, Aššur-lamassi stresses that he cooperated with Šu-Ištar's representatives in Kanesh. He obtained  $4 \frac{2}{3}$  minas of silver and sent it to Šu-Ištar in Assur. Moreover, he obtained 45 sacks of grain and sold it to pay off debts incurred by Watniašwe, Nimar-Ištar and Aššur-imitti. A promise by Watniašwe and Aššur-rabi to pay 10 minas of silver did not materialize. In what appears to be a speech by Abiya, he declares that Aššur-lamassi and (presumably) "the son of Aplum, after he arrived here", drove him and others away from the house and took possession of it instead and sold property to pay their debts.

#### THE KUMRUM-PRIEST

The Old Assyrian word for priest is *kumrum*. It is written logographically with the signs AH.ME, a combination that in Babylonian denotes *pašišum*, also a word for priest. Old Assyrian *kumrum* is used for priests of Assyrian deities and for those of Anatolian deities.<sup>17</sup> Most of the evidence refers to priests in Assur itself.<sup>18</sup> They are mentioned in texts found in Kültepe either as a result of business transactions that took place in Assur, or to identify a person in Kanesh who was the son of a priest in Assur. It shows that the Assyrian community in Anatolia was generally aware of who held the priesthood of the important deities in Assur. There was a *kumrum* of the Aššur temple in Assur according to TC 3, 68,<sup>19</sup> but there also was one (presumably a different person) in Kanesh.<sup>20</sup> A priest of Šin by the name of Aššur-imitti seems to have lived in Kanesh.<sup>21</sup> Did the other Assyrian deities have a priest in Kanesh as well? The dossier about Šu-Ištar demonstrates that he had left Kanesh and was staying in Assur for at least three years. The fact that he had a statue of the goddess and her jewellery in his house in Kanesh shows that he probably already was a *kumrum*-priest before he went to Assur. In Šu-Ištar's absence, the care for the goddess apparently was temporarily performed by one of his sons and later by his wife.

<sup>17</sup> Kryszat 2006.

<sup>18</sup> The attested Assyrian *kumrum*-priests living in Assur served Adad (VS 26, 32:19), Aššur (Mannuba, CCT 6, 27b:4' and TC 3, 203:6), Bēlat-šērim (Iddin-Ištar, Kt c/k 236:27), and Šin (TC 3, 129).

<sup>19</sup> See Dercksen 2004: 78.

<sup>20</sup> *Ga-nu-nu-ú* ah.me ša a-šūr acts as a witness in Kt 88/k 1050:1, see Bayram 1991: 300 and Bayram and Veenhof 1993: 89. Another *kumrum*-priest of Aššur known to have been active in Kanesh is perhaps Ištar-pilah, who owed silver to Pušuken according to CCT 6, 20b:12'.

<sup>21</sup> Erol 2015: 66.

We know no more about the functions of a priest in Kanesh as when Hirsch (1972) wrote about this topic, but it seems obvious that apart from performing possible cultic rituals, one of the priest's main tasks in Kanesh was to assist in oath-taking ceremonies. However, the focus on financial problems in Šu-Ištar's dossier makes us realize that being an Assyrian priest in Kanesh was a part-time function and that this particular *kumrum* was also a trader, as were many of his fellow-countrymen.<sup>22</sup>

#### IN SEARCH OF ISHTAR'S TEMPLE

Two deities were prominent in Old Assyrian society, Aššur and his consort Ishtar, who can presumably be identified with the Assyrian Ishtar (*Ištar-Aššurītum*) attested in Kt 94/k 1296:8-9.<sup>23</sup> Their main temples were in Assur. Their prominence is reflected by the position given to these deities in the colonial legal system; when taking an oath, men did so by an emblem of Aššur, but women had to swear by the *huppum*-emblem of the goddess Ishtar.<sup>24</sup> Textual evidence shows that Aššur possessed his own (modest) sanctuary in Kanesh and in other towns, such as Urshu,<sup>25</sup> but no corresponding arrangement is yet attested for Ishtar. Perhaps it was unnecessary for this goddess to have her own sanctuary in a separate building, because it appears from letter Kt c/k 18 that her statue and her jewellery were kept in the house of her priest.<sup>26</sup> No mention is made of Ishtar's *huppum*-emblem in this letter, which may have been an element in the *šukuttum*.<sup>27</sup> It is noteworthy that the texts from Kt 88/k do not seem to refer to any cultic objects in Šu-Ištar's house. The "15 jars with oil, both small and big" may or may not have been intended for cultic use.<sup>28</sup> The protective role assumed by the Kanesh colony demonstrates, however, that the sacred objects were not part of a private sanctuary, but were important for the whole Assyrian community. This must relate to a cult for Ishtar and the possibility of using her *huppum*-emblem when taking an oath. Using this emblem and those of Aššur meant taking them out (*wašā'um* Š, see Hertel 2013:198 fn. 681) from where they were kept and possibly involved paying a fee to the priest, similar to the leasing of divine emblems

<sup>22</sup> This throws new light on the "house of the priest of Šin" as one of the places where goods were bought in Assur, see Dercksen 2004: 36; Veenhof 2008: 104. Part-time priests were a common phenomenon in the Neo-Babylonian and Achaemenid periods, see, for example, the case of Marduk-remanni in Waerzeggers 2014: 118.

<sup>23</sup> Barjamovic and Larsen 2008: 152 fn.28. The same text refers to other manifestations of Ishtar as *Kadnītum* and *Dimitum*. In her study of the cult of Ishtar in Assur, W. Meinhold (2009: 71-76) discussed the Middle and Neo Assyrian evidence for *Kudnitu* and *Dinitu* (for the reading of this name, see there pp. 74-75). Despite the phonological differences, those could have developed from Old Assyrian forms.

<sup>24</sup> As specified in texts such as Kt 94/k 131 (Michel 1996: 112) and Kt c/k 197.

<sup>25</sup> See Hirsch 1972: 47-48.

<sup>26</sup> Cf. Hazenbos 2003: 204 for Hittite instances of priests keeping cult objects at home and sometimes also making offerings there.

<sup>27</sup> The *patrum* dagger of Aššur was valuable enough to be stolen from the god's cella in Urshu according to SUP 7.

<sup>28</sup> See below, Kt 88/k 971:60-61; 972:11-12. For the use of oil in a cultic context according to Old Babylonian documents from Mari, see Jacquet 2011: 67-75.

in the Old Babylonian period.<sup>29</sup> The size of Ishtar's sanctuary might then have resembled those in the excavated residential area of Old Babylonian Ur.<sup>30</sup>

Since a deity was thought to be present in its statue, a sanctuary in the house of Ishtar's priest would be sufficient as a place for offering. It is unknown whether there existed another sanctuary with a statue of Ishtar in Kanesh, but if this was the case, that other sanctuary may have been referred to by a different name, perhaps the "temple of Išhara". It is known that Išhara shared important characteristics with Ishtar as a goddess of love and sexuality and both deities received votive offerings in Kanesh according to the letter TC 3, 106.<sup>31</sup> This association of Išhara with the Assyrian Ishtar is particularly clear during the Middle Assyrian period when she had a cella in the Ishtar temple in Assur.<sup>32</sup> As for Kanesh, there existed a "temple" (*bētum*) of the goddess Išhara, but no *kumrum* priest of Išhara is known.<sup>33</sup> People visiting this temple "went up" (*elā'um*)<sup>34</sup> to it and since this verb is never used for going to the sanctuary of the god Aššur the sanctuary for Išhara may have been located on the mound of Kanesh.

We know nothing about the way Ishtar of Kanesh looked. The instances where Ishtar is securely attested in Old Assyrian glyptic all come from seals in the Old Babylonian style.<sup>35</sup> Examples from Level II are Teissier (1994) no. 633 (drawing KKS seal 4) and Teissier no. 634 (drawing and photo in CTMMA 1, seal 29). Sealings from Level Ib are on Kt k/k 15 (Özgüç 1968, pl. IX A), Kt k/k 18 (Özgüç 1968, pl. XII 1), and Kt n/k 30 (Özgüç 1968, pl. XV B). Ishtar is depicted in her warlike manifestation, with one foot standing on a lion, carrying a bow and two quivers of arrows and holding a scimitar (Teissier no. 634) or double lion mace (Teissier no. 633) in her hands. This aspect may also have characterized Ishtar of Kanesh, since the inventory of her equipment included a representation of a mace or some other type of weapon. The statue will have been adorned with garments,<sup>36</sup> which could be decorated with silver stars and fastened with toggle-pins.

#### AN ASSYRIAN ALTAR?

The house of the priest of Ishtar seems to have contained a sanctuary of the deity; artefacts appropriate for cultic use have been recovered in several houses in the lower town of Kanesh.

<sup>29</sup> Harris 1965; Veenhof 2003: 328; Stol 2012b.

<sup>30</sup> For these neighbourhood shrines, see now Asher-Greve and Goodnick Westenholz 2013: 231-235.

<sup>31</sup> Edited in Michel, CMK no. 386.

<sup>32</sup> Meinhold 2009: 70.

<sup>33</sup> Hirsch 1972: 48; Prechel 1996: 48; Barjamovic and Larsen 2008: 152; Dercksen 2011a: 64. Note that a *kaššum* of Išhara is mentioned in Kt 94/k 432:19-20 (courtesy G. Barjamovic).

<sup>34</sup> BIN 6, 146 records amounts of silver that an Assyrian received on the occasion of his "going up to the temple of the goddess", in all likelihood another reference to the sanctuary of Išhara.

<sup>35</sup> References kindly provided by Agnete Lassen. Note that Ishtar is depicted without wings, for which see now Tsukimoto 2014.

<sup>36</sup> For example, Neo-Babylonian Ishtar-of-Uruk wore a *kusitum*-garment, see Beaulieu 2003: 156.



Most such finds belong to the realm of family religion, including animal shaped vessels, figurines of deities made of lead or another material as well as moulds for casting such objects.<sup>37</sup> Conspicuously absent are golden “gods”. Several specimens of these divine representations were owned by Assyrians (often heads of a family) according to texts from Kültepe Karum Levels II and Ib.<sup>38</sup> These “gods” also appear in a secular context as pledges for the value of the metal.<sup>39</sup> The well-known lead figurines appear to have represented Anatolian deities and these gold figurines were comparatively smaller. Two or more such “gods” weighed one-third of a shekel (less than 3 g) according to Kt m/k 69:18 (Hecker 2004), and a quantity of no less than twenty gold “gods” of a man called Ili-pi-ušur is mentioned in AKT 5, 46:12. The size and weight of these small objects made them easy to carry on journeys. Without any trace of such valuable figurines from excavations we can only speculate what they looked like.<sup>40</sup> The only comparative artefact is a piece of gold foil measuring 4.1 x 3 cm found in Kültepe in a house from Level Ib in 2006, showing an Anatolian bearded deity standing on a lion; the foil had been attached to a backing in antiquity.<sup>41</sup> A bronze statuette of a naked goddess (Kt 82/k 110) was found in a house in Level Ib.<sup>42</sup> Lead figurines of deities or stone moulds to cast such objects were



Fig. 2. The stele in room “8”.  
From: Özgüç and Özgüç  
1953, plate VII no. 22.

<sup>37</sup> An overview (with bibliographical references) of cult vessels can be found in Özgüç 1994a. A rare collection was discovered in the house of Elamma (see Veenhof 2015: 73), described in Özgüç 1994b: 369: “The cult objects were found together in room 2 on the floor along its north wall. This set of cult objects, which to judge by traces of charcoal was placed on wooden shelves, consisted of a vessel in boat-shape, a large decorated sea-shell (triton), drinking cups in the shape of an antelope, boot, and snail; cups of various shapes with painted decoration, a bowl with three geese swimming inside, and fruitstands, always noted to be deposited in pairs, with one, two, or four handles, and a bright red polished slip. Evidently also part of this group was a large partridge-shaped drinking vessel, a sherd of which was found in room 6.”

<sup>38</sup> Kt m/k 69 (Hecker 2004: 286): (18)  $\frac{1}{3}$  gín i-le : ša a-bi<sub>4</sub>-ni, “One-third of a shekel (of gold): our father’s gods”; Kt 2001/k 325/a (Albayrak 2004: 13): (18) dingir-le ša kù.gi ša šál-lim-a-šûr (19) a-bi<sub>4</sub>-ša šu-ku-ta-ša, “The gods of gold of her father Šallim-Aššur (and) her jewellery”.

<sup>39</sup> See Veenhof in AKT 5: 133-134, note to line 5. Examples: AKT 5, 35:5 (dingir-le kù.gi); Kt a/k 447, see Dercksen 1996: 105.

<sup>40</sup> Since the technique in which these figurines were executed is unknown, any comparison remains tentative. For the size and weight one might compare the two suppliant goddesses in the Dilbat Hoard (late Old Babylonian or early Kassite), 3 cm high and weighing 1.95 grams and 1.8 grams, and “made of a piece of sheet gold with a seam down the back”, see Lilyquist 1994: 17, 35. Pieces of gold foil with a figure embossed on it can be very thin and light. The figural gold foils (*guldgubber*) from Sweden analysed by J. Gullman vary in thickness from 0.018 to 0.094 mm; the heaviest analysed foil (a single figure with loop) weighs 0.34 g, see fig. 21 in Lamm 2004: 114-115. Watt (2004) estimated the weight of those found at Uppåkra to be 0.1-0.15 g.

<sup>41</sup> Kulakoğlu 2008, with a colour photo in *Anatolia’s Prologue*, no.190.

<sup>42</sup> Özgüç 1986.

found in Kültepe and other sites,<sup>43</sup> and a winged naked goddess (6.35 cm high) was found in Konya Karahöyük Level I.<sup>44</sup>

Uninscribed steles that could well have belonged to cultic ceremonial have been found in several houses in Kültepe in Level Ib contexts.<sup>45</sup> A building in P/19-20 contained a stele in the southeastern corner of room “7”. Moreover, a trough of andesit was placed in front of the stele, into which libations could have been poured.<sup>46</sup> According to the excavators, this room was built during Level Ib, but continued to be used in the Level Ia period. They also noted the similarity of this find with that made in Karahöyük (Elbistan), dating to the 12<sup>th</sup> century BC, where they had excavated a stele inscribed with hieroglyphs with a trough in front of it.<sup>47</sup> In contrast to the stele from Kültepe, the one found in Karahöyük was placed in the open air. M. Darga regarded it as a *huwaši*-stone.<sup>48</sup>

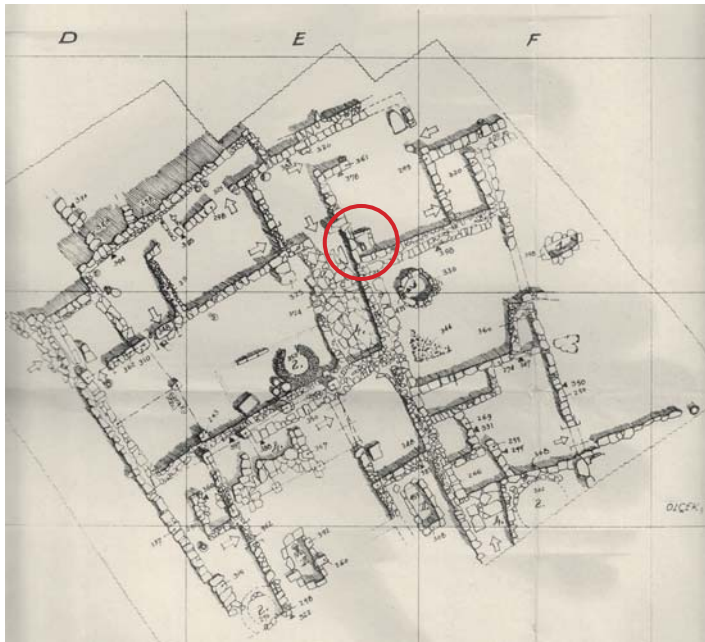


Fig. 3. The platform in the southwest corner of Room “8” in E/6. From: Özgüç and Özgüç 1953, map A.P.1 (detail).

Another stone stele was excavated in Kültepe in a large house in D-E-F/6-7 in 1949 (Fig. 2). This stele, measuring 97 cm in height, was placed within a podium measuring about one metre square in the southwest corner of room “8” (Fig. 3).<sup>49</sup> Probably unrelated to the podium and stele was a pot grave with an ivory statuette (Kt e/k 160) of a naked goddess lying against the skeleton underneath the floor of this room.<sup>50</sup> The location of the stele set in a podium is significant and suggestive of a cultic installation. Room “8” also contained the only clay tablets found in this

<sup>43</sup> Emre 1971 and 1993; see also Özgüç 2003: 268-281. For the moulds, cf. Müller-Karpe 1994: 221-223, Taf. 60.

<sup>44</sup> Alp 1974.

<sup>45</sup> Another stela was found lying across a cist-grave in a house from Level Ib in 2004, probably in secondary context. Steles have no place in Assyrian funerary architecture. Kt 93/k 916 (Michel 2008: 186) refers to the pouring of water into a stove (*ina kanūnim*) as part of a funerary ritual.

<sup>46</sup> Özgüç and Özgüç 1953: 118; fig. 25; folded plans B.P.1 and B.P.2.

<sup>47</sup> Özgüç and Özgüç 1949, pl. VI and pl. X 1-3. For the inscription, see Hawkins 1993.

<sup>48</sup> Darga 1969: 16.

<sup>49</sup> Özgüç and Özgüç 1953: 120; figs. 11, 22, 24; folded plans A.P.1 and A.P.2.

<sup>50</sup> Özgüç 1959: 107; colour picture of the figurine in Özgüç 2003: 235.

building. According to the information supplied by Balkan, among these documents are the envelope (Kt b/k 22) and a tablet (Kt b/k 26) of a letter sent by Daya to Asirum and Il-wēdāku.<sup>51</sup> This Daya is known from texts found at Boğazköy where he apparently had a house. Asirum is identified by the same father's name as Daya, and may have been Daya's brother, as suggested by Balkan. The other tablets found in room "8" seem to deal with business affairs and suggest an Assyrian origin. Although it is possible that the house and the cultic installation in room "8" were used by Assyrians, this does not automatically follow from the tablet find. One of the scenarios to explain the presence of part of an Assyrian archive in the house of an Anatolian can be found in Kt 2001/325 (Albayrak 2004). According to that text from Level Ib, a daughter (a *gubabtum*-priestess) of a deceased Assyrian kept her father's documents in his house, which apparently had been confiscated by the local king to give it to one of his Anatolian servants. The documents were to be handed over to the woman's brothers by the new Anatolian owner only after her death.

Whereas comparative finds in Karahöyük make it likely that the stele in the house in P/19-20 was a cultic installation in the Anatolian tradition, the tablets found in the house in D-E-F/6-7 raise the possibility that the house and the cultic installation in room "8" belonged to an Assyrian milieu. The absence of cultic steles in Assur during this period or any mention of them in texts from the earlier Level II period demonstrates that they were not regular Assyrian cultic accoutrements.

It appears therefore from the houses that have so far been excavated and published from Karum Level II that we have no firm evidence for Assyrian cultic installations, such as may be presupposed to have existed in the house of Šu-Ištar, priest of Ishtar. If the stele and the platform in room "8" are part of an Assyrian altar, this would be the first indication that steles entered the Assyrian cult in Kültepe-Kanesh during the Level Ib period.

## BIBLIOGRAPHY

- Albayrak, İ., 2004 — 'She will live, eat and be anointed together with them' *ušbat aklat u paššat ištīšunu*. In: J.G. Dercksen (ed.), *Assyria and Beyond. Studies Presented to Mogens Trolle Larsen*. PIHANS 100. Leiden; 9-20.
- Alp, S., 1974 — Ištar auf dem Karahöyük. In: Mansel'e Armağan. *Mélanges Mansel*. TTKY VII/60. Ankara; 703-707.
- Asher-Greve, J.M., and J. Goodnick Westenholz, 2013 — *Goddesses in Context. On Divine Powers, Roles, Relationships and Gender in Mesopotamian Textual and Visual sources*. OBO 259.
- Bär, J., 2003 — Die älteren Ishtar-Tempel in Assur. *Stratigraphie, Architektur und Funde eines altorientalischen Heiligtums von der zweiten Hälfte des 3. Jahrtausends bis zur Mitte des 2. Jahrtausends v. Chr.* WVD OG 105. Saarbrücken.
- Balkan, K., 1955 — Kaniš Kārum'unun Kronoloji Problemleri Hakkında Müşahedeler. *Observations on the Chronological Problems of the Kārum Kaniš*. TTKY VII/28. Ankara.

<sup>51</sup> Balkan 1955: 65 fn. 8; Balkan 1957: 61-62.

- Balkan, K., 1957 — Letter of King Anum-Hirbi of Mama to King Warshama of Kanish. TTKY VII/31a. Ankara.
- Barjamovic, G., and M.T. Larsen, 2008 — An Old Assyrian incantation against the evil eye. *Alt-orientalische Forschungen* 35, 144-155.
- Bayram, S., 1991 — Taşınmaz mallar hakkında yeni Kültepe vesikaları. *Belleten* LV, sayı 213, 297-314.
- Bayram, S., and K.R. Veenhof, 1993 — Unpublished Kültepe texts on real estate. *JEOL* 32, 87-100.
- Beaulieu, P.-A., 2003 — The Pantheon of Uruk during the Neo-Babylonian Period. Cuneiform Monographs 23. Leiden/Boston.
- Benzel, K., P.O. Harper, E. Klengel-Brandt and L. Aruz (eds.), 1995 — Assyrian Origins. Discoveries at Ashur on the Tigris. Antiquities in the Vorderasiatisches Museum, Berlin. New York: Metropolitan Museum of Art.
- Charpin, D., 2012 — “Temple-palais” et chapelles palatiales en Syrie aux troisième et deuxième millénaires av. J.-C., *Revue d'assyriologie et d'archéologie orientale* 106, 73-82.
- Çeçen, S., 1997 — Kaniş kârum'unun diğer kârum ve wabartumlar'a “KÛ.AN” (*amutum*) ili ilgili önemli talimatları, *Belleten* LXI 231, 219-232.
- Dercksen, J.G., 1996 — The Old Assyrian Copper Trade in Anatolia. PIHANS 75. Istanbul.
- Dercksen, J.G., 2004 — Old Assyrian Institutions. PIHANS 98. Leiden.
- Dercksen, J.G., 2011a — The exchange of sacrificial gifts. In: B.S. Düring, A. Wossink, P.M.M.G. Akkermans (eds.), *Correlates of Complexity. Essays in Archaeology and Assyriology Dedicated to Diederik J.W. Meijer*. PIHANS 116. Leiden; 59-67.
- Dercksen, J.G., 2011b — The barley of life, *N.A.B.U.* 2011, no. 14; 17.
- Dercksen, J.G., 2015 — The archive of Ali-ahum (I). The documents excavated in N-O-P/20 in 1950. In: F. Kulakoğlu and C. Michel (eds.), *KIM 1. Proceedings of the First Kültepe International Meeting*. Subartu 35. Turnhout; 47-58.
- Donbaz, V., 1996 — Kültepe tabletleri ışığında İ.Ö. 2000-1760 yıllarında Anadolu'nun sosyal yapısı. 1995 Yılı Anadolu Medeniyetleri Müzesi Konferansları. Ankara; 177-194.
- Donbaz, V., 2008 — Three court proceedings concerning Walaliašu'e, an Anatolian woman. In: T. Tarhan, A. Tibet, E. Konyar (eds.), *Muhibbe Darga Armağan*. Istanbul; 209-222.
- Durand, J.-M., 1991. Précurseurs syriens aux protocoles néo-assyriens. Considérations sur la vie politique aux Bords-de-l'Euphrate. In: D. Charpin, F. Joannès (eds.), *Marchands, diplomates et empereurs. Etudes sur la civilisation mésopotamienne offertes à Paul Garelli*. Paris: ERC; 13-71.
- Durand, J.-M., 2008. La religion amorrite en Syrie à l'époque des archives de Mari. In: G. del Olmo Lete (ed.), *Mythologie et religion des Sémites occidentaux. Volume I, Ébla, Mari*. Leuven, Paris, Dudley: Peeters and Departement Oost-erse Studies; 161-716.
- Emre, K., 1971 — Anadolu Kurşun Figürinleri ve Taş Kalıpları. Anatolian Lead Figurines and Their Stone Moulds. TTKY VI/14. Ankara.
- Emre, K., 1993 — New lead figurines and moulds from Kültepe and Kızıllhamza. In: M.J. Mellink, E. Porada, T. Özgüç (eds.), *Nimet Özgüç'e Armağan. Aspects of Art and Iconography: Anatolia and its Neighbors. Studies in Honor of Nimet Özgüç*. Ankara; 169-177.
- Erol, H., 2015 — The archives of Šu-Ištar son of Aššur-bāni (Kt 92/k 264-1008). In: F. Kulakoğlu and C. Michel (eds.), *KIM 1. Proceedings of the First Kültepe International Meeting*. Subartu 35. Turnhout; 59-72.
- Harris, R., 1965 — The journey of the divine weapon. In: H.G. Güterbock, Th. Jacobsen (eds.), *Studies in Honor of Benno Landsberger on his Seventy-Fifth Birthday*. AS 16; 217-224.
- Hawkins, J.D., 1993 — The historical significance of the Karahöyük (Elbistan) stele. In: M.J. Mellink, E. Porada, T. Özgüç (eds.), *Nimet Özgüç'e Armağan. Aspects of Art and Iconography: Anatolia and its Neighbors. Studies in Honor of Nimet Özgüç*. Ankara; 273-279.
- Hazenbos, J., 2003 — The Organization of the Anatolian Local Cults During the Thirteenth Century B.C. An Appraisal of the Hittite Cult Inventories. CM 21.
- Hecker, K., 2004 — Beim Tode unseres Vaters... Der leidige Streit ums Erbe. In: J.G. Dercksen (ed.), *Assyria and Beyond. Studies Presented to*

- Mogens Trolle Larsen. PIHANS 100. Leiden; 281-297.
- Hertel, Th.K., 2013 — Old Assyrian Legal Practices. Law and Dispute in the Ancient Near East. PIHANS 123, OAAS 6. Leiden.
- Hertel, Th.K., 2014 — The lower town of Kültepe: Urban layout and population. In: L. Atici, F. Kulakoğlu, G. Barjamovic, A. Fairbairn (eds.), Current Research at Kültepe-Kanesh. An Interdisciplinary and Integrative Approach to Trade Networks, Internationalism, and Identity. JCS Supplemental Series 4; 25-54.
- Hirsch, H., 1972 — Untersuchungen zur altassyrischen Religion. AfO Beiheft 13/14. Osnabrück.
- Jacquet, A., 2011 — Documents relatifs aux dépenses pour le culte. Florilegium marianum 12. Mémoires de N.A.B.U. 13.
- Kouwenberg, N.J.C., 2010 — The Akkadian Verb and its Semitic Background. Winona Lake: Eisenbrauns.
- Kryszat, G., 2006 — Herrscher, Herrschaft und Kulttradition in Anatolien nach den quellen aus den altassyrischen Handelskolonien – Teil 2: Götter, Priester und Feste Anatoliens. *Alt-orientalische Forschungen* 33/1, 102-124.
- Kulakoğlu, F., 2008 — A Hittite god from Kültepe. In: C. Michel (ed.), Old Assyrian Studies in Memory of Paul Garelli. PIHANS 112. Leiden; 13-19.
- Lamm, J.P., 2004 — Figural gold foils found in Sweden. In: B. Gyllensvärd, P. Harbison, M. Axboe, J.P. Lamm, T. Zachrisson, S. Reisborg, Excavations at Helgö 16: Exotic and Sacral Finds from Helgö. Stockholm; 41-142.
- Leemans, W.F., 1952 — Ishtar of Lagaba and her Dress. SLB 1 (1). Leiden.
- Lilyquist, Chr., 1994 — The Dilbat hoard, *Metro-politan Museum Journal* 29, 5-36.
- Maxwell-Hyslop, K.R., 1971 — Western Asiatic Jewellery c. 3000-612 B.C. London: Methuen.
- Meinhold, W., 2009 — Ištar in Aššur. Untersuchung eines Lokalkultes von ca. 2500 bis 614 v. Chr. AOAT 367. Münster.
- Michel, C., 1996 — Hommes et femmes prêtent serment à l'époque paléo-assyrienne. In: S. Lafont (ed.), Jurer et maudire. Méditerranées 10-11. Paris: Harmattan; 105-123.
- Michel, C., 2008 — Les Assyriens et les esprits de leurs morts. In: C. Michel (ed.), Old Assyrian Studies in Memory of Paul Garelli. PIHANS 112. Leiden; 181-197.
- Michel, C., and P. Garelli, 1997 — Tablettes paléo-assyriennes de Kültepe. Volume 1 (Kt 90/k). De Boccard.
- Müller-Karpe, A., 1994 — Altanatolisches Metallhandwerk. Offa-Bücher Band 75. Neumünster.
- Nicolini, G., 2010 — Les ors de Mari. Bibliothèque archéologique et historique tome 192. Beyrouth: Institut français du Proche-Orient.
- Özgüç, T., and N. Özgüç, 1947 — Türk Tarih Kurumu ... Karahöyük Hafriyatı Raporu 1947. Ausgrabungen in Karahöyük. TTKY V/7. Ankara.
- Özgüç, T., and N. Özgüç, 1953 — Kültepe Kazısı Raporu 1949. Ausgrabungen in Kültepe. Bericht über die im Auftrage der Türkischen Historischen Gesellschaft, 1949 durchgeführten Ausgrabungen. TTKY V/12. Ankara.
- Özgüç, T., 1959 — Kültepe-Kaniş. Asur Ticaret Kolonilerinin Merkezinde Yapılan Yeni Araştırmalar. New Researches at the Center of the Assyrian Trade Colonies. TTKY V/19. Ankara.
- Özgüç, N., 1968 — Kaniş Karumu Ib Katı Mühürleri ve Mühür Baskıları. Seals and Seal Impressions of Level Ib from Karum Kanish. Ankara.
- Özgüç, T., 1986 — Some rare objects from the Karum of Kanish. In: H.A. Hoffner jr (ed.), Kanişşuwar. A Tribute to Hans G. Güterbock. AS 23; 173-183.
- Özgüç, T., 1994a — A cult vessel discovered at Kanish. In: P. Calmeyer, K. Hecker, L. Jakob-Rost, C.B.F. Walker (eds.), Beiträge zur altorientalischen Archäologie und Altertumskunde. Festschrift für Barthel Hrouda. Wiesbaden; 221-227.
- Özgüç, T., 1994b — A boat-shaped cult-vessel from the Karum of Kanish. In: Gasche, Tanret, Janssen, and Degraeve (eds.), Cinquante-deux réflexions sur le Proche-Orient ancien offertes en hommage à Léon De Meyer. Leuven: Peeters; 369-375.
- Özgüç, T., 2003 — Kültepe Kaniş/Neša. The Earliest International Trade Center and the



- Oldest Capital City of the Hittites. The Middle Eastern Culture Center in Japan.
- Özgüç, N., 2006 — Kültepe-Kaniš/Neša. Yerli Peruwa ve Aššur-imittī'nin oğlu Assur'lu Tüccar Uşur-ša-Ištar'ın Arşivlerine ait Kil Zarfların Mühür Baskıları. Seal Impressions on the Clay Envelopes from the Archives of the Native Peruwa and Assyrian Trader Uşur-ša-Ištar son of Aššur-imittī. Ankara.
- Özgüç, N., and Ö. Tunca, 2001 — Kültepe-Kaniš. Mühürlü ve Yazıtlı Kil Bullalar. Sealed and Inscribed Clay Bullae. Ankara.
- Özgüç, T., and R. Temizer, 1993 — The Eskiyaşar treasure. In: M.J. Mellink, E. Porada, T. Özgüç (eds.), *Aspects of Art and Iconography: Anatolia and its Neighbors. Studies in Honor of Nimet Özgüç*. Ankara: TTK; 613-628.
- Paoletti, P., 2012 — Der König und sein Kreis. Das staatliche Schatzarchiv der III. Dynastie von Ur. BPOA 10. Madrid.
- Postgate, J.N., 2009 — Schmuck (jewellery). A. In *Mesopotamien*. In: *Reallexikon der Assyriologie und Vorderasiatischen Archäologie*, Band 12, 3./4. Lieferung; 234-237.
- Prechel, D., 1996 — Die Göttin Išhara. Ein Beitrag zur altorientalischen Religionsgeschichte. ALASPM 11. Münster.
- Sallaberger, W., 1993 — Der kultische Kalender der Ur III-Zeit. Teil 1. Berlin, New York: Walter de Gruyter.
- Sanati-Müller, Sh., 1990 — Texte aus dem Sinkāšid Palast. Dritter Teil. Metalltexte. *Baghdader Mitteilungen* 21, 131-213.
- Stol, M., 2012a — Vrouwen van Babylon. Prinsessen, priesters, prostituees in de bakermat van de cultuur.
- Stol, M., 2012b — Renting the divine weapon as a prebend. In: Tom Boiy *et al.* (eds.), *The Ancient Near East, a Life!* Festschrift Karel Van Lerberghe. OLA 220. Leuven: Peeters; 561-583.
- Stol, M., 2013 — Review of M.T. Roth (ed.), *The Assyrian Dictionary of the Oriental Institute of the University of Chicago*. U and W, *OLZ* 108, 88-92.
- Teissier, B., 1994 — Sealing and Seals on Texts from Kültepe *Kārum* Level 2. PIHANS 70. Istanbul.
- Tolstikow, W.P., and M.J. Trejster, 1996 — Der Schatz aus Troja. Schliemann und der Mythos des Priamos-Goldes. Katalogbuch Ausstellung in Moskau 1996/97. Stuttgart/Zürich: Belser Verlag.
- Tsukimoto, A., 2014 — "In the shadow of thy wings": a review of the winged goddess in Ancient Near Eastern iconography. In: D.T. Sugimoto (ed.), *Transformation of a Goddess. Ishtar – Astarte – Aphrodite*. OBO 263. Fribourg/Göttingen; 15-31.
- Veenhof, K.R., 2003 — Fatherhood is a matter of opinion. An Old Babylonian trial on filiation and service duties. In: W. Sallaberger, K. Volk, A. Zgoll (eds.), *Literatur, Politik und Recht in Mesopotamien. Festschrift für Claus Wilcke*. Wiesbaden: Harrassowitz; 313-332.
- Veenhof, K.R., 2015 — The archive of Elamma son of Iddin-Suen and his family. In: F. Kulakoğlu and C. Michel (eds.), *KIM 1. Proceedings of the First Kültepe International Meeting*. Subartu 35. Turnhout; 73-83.
- Waerzeggers, C., 2014 — Marduk-rēmanni. Local Networks and Imperial Politics in Achaemenid Babylonia. OLA 233. Leuven: Peeters.
- Watt, M., 2004 — The gold-figure foils ("Guldgubbar") from Uppåkra. In: L. Larsson (ed.), *Continuity for Centuries. A Ceremonial Building and its Context at Uppåkra, Southern Sweden*; 167-221.
- Westenholz, J.G., 2000 — in collaboration with J. Ikeda, S. Izre'el, M. Sigrist, I. Singer, M. Yamada, *Cuneiform Inscriptions in the Collection of the Bible Lands Museum Jerusalem. The Emar Tablets. Cuneiform monographs* 13. Groningen: Styx.
- Winter, I.J., 1999 — The aesthetic value of lapis lazuli in Mesopotamia. In: A. Caubet (ed.), *Cornaline et pierres précieuses, Actes du colloque, musée du Louvre*. Paris; 43-58.
- Zanon, M., 2012 — The symbolism of colours in Mesopotamia and the importance of light. In: R. Matthews, J. Curtis (eds.), *Proceedings of the 7<sup>th</sup> International Congress on the Archaeology of the Ancient Near East. Volume 2*. Wiesbaden; 221-243.



## APPENDIX

TPAK 1, 105 and the three tablets published in Donbaz 2008 are important for the understanding of Kt c/k 18, and they are given in transliteration below. I was able to collate the three Kt 88/k documents from photos I made in the Museum of Anatolian Civilizations at Ankara on 26 June 2009.

## TPAK 1, 105

Publication: Michel and Garelli 1997.

(1) kù.babbar *ša* : *i-na-a* (2) dumu *e-lá-li* : *a-šur-lá-ma-sí* (3) dumu *šu-ku-bi-im* (4) *ù a-šur-ma-lik* (5) dumu *a-ta-ta* : *a-na wa-at-/ni-áš-w[e]* (6) *dam* : *šu-ištar* (7) *nu-ur-ištar a-šur-i-m[i-tí]* (8) *dumu-e* : *šu-ištar* : *ù h[a-dí-ni]* (9) *wa-ar-dí-šu-nu* : *a-[na]* (10) *ší-ib-tim* : *i-[dí-nu-ma]* (lo.e. 11) *ṭup-pá-áš-nu* : *[ih-ri-mu]* (12) *i-na ṭup-pì-i[m ha-ar-mi-im]* (rev. 13) *šu-um-šu-nu* : *lá-áš[p-tù]* (14) *a-šur-lá-ma-sí* (15) *ù dumu-ú-šu* : *a-na k[ù.babbar]* (16) *šu-a-tí* : *a-na* : *dam* (17) *šu-ištar* (eras.) *dumu-e šu-i[štar]* (18) *ù ha-dí-ni* : *wa-<ar>-dí-šu-n[u]* (19) *a-šur-lá-ma-sí* (20) *ú dumu-ú-šu* : *lá i-tù-/ru-ú* (21) kù.babbar : kù.babbar-áp (22) *i-na-a* (u.e. 23) *igi a-ta-a dumu bu-zi-a* (24) *igi ú-zu-a* (eras.) (l.e. 25) *dumu li-pá-a* : *igi šu-mi-a/bi<sub>4</sub>-a* (26) *dumu puzur<sub>2</sub>-ištar*

Concerning the silver that Innaya son of Elali, Aššur-lamassi son of Šu-Kubum, and Aššur-malik son of Atata gave on interest to Watniašwe, wife of Šu-Ištar, to Nur-Ištar (and) Aššur-imitti, sons of Šu-Ištar, and to their slave Hadini, (about which) they validated their debt-note. On the certified debt-note their names have been written. Concerning that silver, Aššur-lamassi and his sons will not make a claim on the wife of Šu-Ištar, the sons of Šu-Ištar or on their slave Hadini. The silver is that of Innaya. (Three witnesses).

## Kt 88/k 970

Publication: Donbaz 2008: 211-213; collated.

(1) *sà-ha ša ki-ma* : *wa-at\*-ni-a-šu-ú-e* (2) *dam šu-ištar* : *ú a-bi<sub>4</sub>-a dumu šu-ištar* (3) *a-šur-lá-ma-sí* : *maškim* : *iš-ú-lu* (4) *um-ma sà-ha ša ki-ma* : *wa-at\*-<ni-a>-šu-e* : (5) *ú a-bi<sub>4</sub>-a-ma* : *šu-ištar a-bu-ni* (6) *a-na ra-bi<sub>4</sub>-šú-tim* : *e-gu<sub>5</sub>-ra-kà-a* (7) *i-na ṭup-pì-im* : *ša a-lim<sup>ki</sup>* (8) *a-šur-gal* : *wa-ar-dam\** : *e-wa-ri-mu-lša* (9) *tù-kà-sà\*-ma* : *ú mì-ma* : *il<sub>5</sub>-qé-ú-/ni* (10) *ú-ta-ru* : *kà-ru-um* : *kà-ni-iš* (11) *e-mu-kà* : *ta-li-kam-ma* (12) *igi ší-ip-ri* : *ša a-lim<sup>ki</sup>* : *a-šur\*-[gal\*]* (13) *tù-sà-ni-iq-ma* : *um-ma a-šur\*-gal-ma* (14) *1 gú 30 ma-na* kù.babbar : *a-da-na-kum* (15) *ú a-ma-lá* : *ṭup-pì-im* : *ša a-lim<sup>ki</sup>* (16) *ú na-áš-pè-er-tim* : *ša a-bi<sub>4</sub>-a* (17) *kà-sí-e-ma* : *ri-id-a-ni* (18) *iš-tù <mu>.3.šè ta-li-kam-ma* (19) *a-ma-lá* : *ṭup-pì-im* : *ša a-lim<sup>ki</sup>* (20) *ú té-er-tim\** : *ša a-bi<sub>4</sub>-a* : *lá té-ta-pá-áš-/ma\** (21) *iš-tí* : *a-šur\*-gal* : *ta-na-wu-ma* (22) *1 gú 30 ma-na* kù.babbar *ša a-bi<sub>4</sub>-a* (23) *tù-HU-ta-li-qá-a* : *2 maškim* (24) *wa-ar-kà-at-kà-ma* : *i-li-ku-ni-/ma* (25) *a-ma-lá* : *ṭup-pè-e* : *ša a-lim<sup>ki</sup>* (26) *ú\* té-er-tí* : *a-bi<sub>4</sub>-a* : *e-pu-šu-ma* (27) *a-na a-lim<sup>ki</sup>* : *i-ta\*-al\*-ku-ú* (28) *a-ta* : *iš-tí* : *a-šur-gal* : *na-wa-tí-ma* (29) *kà-sú-šu* : *lá ta-mu-a* : *é a-bi<sub>4</sub>-ni* (30) *tù-HU-ta-li-qá-a* : *e-wa-ri-mu-ša* (31) *ur-dum sí-kà-kà* : *iš\*-ba-at-ma* (32) *um-ma šu-ut-ma* : *al-kam* : *kà-sí-e-ma\** (33) *a-ma-lá* : *ṭup-pì-im* : *ša a-lim<sup>ki</sup>* (34) *ú be-lí-a* : *ru-a-ni* : *a-ta* : *igi kà-ri-lim* (35) *kà-ni-eš\** : *tur gal* : *ú ší-ip-ri\** (36) *ša a-lim<sup>ki</sup>* : *wa-*

ar-dam : ta-du-a-lak\* (37) um-ma a-ta-ma : lá ú-kà-sà-a-kà (38) a-na-kam-ma : uš\*-mì-a-at\*-kà (39) ú-ul : a-na ší-mì-im : a-da-kà (40) iš-tù : ig-ri-kà : ša-bu-a-tí-ni (41) ú zi\*-ra\*-am : ša 40 ma-na-e (42) ša a-na a-lim<sup>ki</sup> : ú-ba-lam qá-bi<sub>4</sub>-a-tí-ni (43) zi-ra-am : a-na ší-mì-im : ta-dí-in (44) ú kà-ru-um : tur gal : pì-kà-a (lo.e. 45) ú-kà-al : ki-ma : a-hu-ú-a (46) ni-mar-ištar ú a-šùr-i-mì-tí (47) i-na é-tim : lá uš-b[u-ni a-hi] (rev. 48) ša-ba-at-ma : a-wi-li [a-na] ma-/lá\* (49) ṭup-pì-im : ša a-lim<sup>ki</sup> ri-dí (50) é a-bi<sub>4</sub>-ni : tù-ša-ni-ih (ruling between lines 50 and 51) (51) a-šùr-lá-ma-sí : sà-ha ša ki-ma (52) wa-at\*-ni-a-šu-e : dam šu-ištar ú\* a-bi<sub>4</sub>-a (53) dumu šu-ištar e-pu-ul : um-ma a-šùr-lá-ma-sí/ma (54) i-nu-mì : iš-tù a-lim<sup>ki</sup> : a-li-kà-ni (55) ba-lúm : ša-zu-za-at\* : a-bi<sub>4</sub>-ku-nu : ú ší-be-le (56) a-na é a-bi<sub>4</sub>-ku-nu : ú-lá e-ru-ub (57) 4 2/3\* ma-na kù.babbar ša i-na é a-bi<sub>4</sub>-ku-nu (58) ak-šu-da-ni : a-na-ku : ú ša-zu-za\*-tum (59) ni-ik-nu-uk-ma : a-na x-hu-/ma (60) ni-dí-in-ma : a-na šé-er (61) a-bi<sub>4</sub>-ku-nu : ú-bi<sub>4</sub>-il<sub>2</sub> : 45 na-ru-uq (62) 1/2\*-lam : še.am : 1/2 \*-lam ar-ša-tum (63) ša ak-šu-da-ni : a-na hu-bu-ul (64) wa-at\*-ni-a-šu-e : ni-mar-ištar ú a-šùr-i-/mì-tí (65) ni-dí-in : a-ha-ma : 5/6 ma-na 2 gín (66) kù.babbar : a-na-ku : ú ša-zu-za-tum (67) a-na hu-bu-ul-ma : wa-at\*-ni-a-šu-e (68) a-na nu-a-im : ni-iš-qú-ul igi ší-ip-/ri (69) ša a-lim<sup>ki</sup> : ra\*-<bi>\*-ú\*-tim : é kà-ri-/im (70) kà-ni-eš\* : wa-at\*-ni-a-šu-e (71) um\*-ma\*-ak-nu : ú a-šùr\*-gal : 10 ma-na-e kù.babbar (72) pì-šu-nu : i-dí-nu-ni-ma : a-dí : u<sub>4</sub>-mì-im (73) a-nim : i-ta-pu-<lu>-ú-ni : ú ú-tá-tám (74) ša me-ra-áš-tim : ša kù.babbar 10 ma-na (75) a-šùr\*-gal : ša pì-šu : i-dí-na-ni-ni (76) ta-li-kà-ma : i-na a-lá-ni : a-na hu-bu-li-/ku-nu (77) ú hu-bu-ul : um-mì-ku-nu : ta-ta\*-dí-na-/ší\* (78) a-na kà-ri-im : ar-de<sub>8</sub>-ku\*-nu\*-ma (79) um-ma a-na-ku-ma : ú-[ṭ]á-tám : a-ma-lá (80) dí-in : a-lim<sup>ki</sup> : a-na [x x x x] ta-er\* (81) kà-ru-um : li-ik-s[i\*-x x a-t]ú\*-nu\* (82) a-na šé-er : a-bi<sub>4</sub>-ku-nu : x [x x] (83) mì-nam : a-ta : tá-hu-a-tí : i<sup>1</sup>\*-[na (x x)] (84) na-áš-pè-er-tim : ša a-bi<sub>4</sub>-ni : ú-t[a-a]r (85) ú-ṭù\*-tum ša a-bi<sub>4</sub>-ni-ma : ni-ib-ta-/a-ni! (86) iš-tù : dumu\* áp\*-lim\* : e-li-a-ni (87) ni-a-tí : ú ša-zu-za\*-tim : tù-ki-ša-/ma (88) é-tám : a-tù\*-nu\* : tù-kà-lá-a\* (89) ú ma-ak-na-kam : ku-nu-ki : ša ša-zu-za\*-tim (90) ú ku-nu-ki-a ta-áp-ṭù-ra-ma (u.e. 91) ú ṭup-pè-e : tù-ba-li-ha (92) géme ur-dam\* : ú al-pè\*-e : a-na ší-mì-im (93) a-na hu-bu-li-ku-nu : ta-ta-dí-na\* (l.e. col. I 94) ú\* i-na ší-tí : géme-tim (95) ú ur-de<sub>8</sub>-e : qá-tí : tám-kà-ri\*-/ku-nu (96) tù-ša-áš-ki-na 1 ma-na kù.babbar (97) ší-im ša-am-nim : (col. II 98) ša dumu na-ra-am-zu : a-tù-nu-ma (99) ta-al-qé-a : ú ší-tí : ša-am-nim (100) ta-ta-áb-lá : ú a-tí-de<sub>8</sub>\*-e (101) 1 ma-na.ta\* ša zi-ri-iš-tim (102) ša a-bi<sub>4</sub>-ku-nu : a-na ší-mì-im (col. III 103) ta-ta-ad-na a-na-ma é (104) a-bi<sub>4</sub>-ku-nu : tù-ha-li-qá-ni (105) ú ṭup-pá-am ša a-lim<sup>ki</sup> tù-ki\*-/ša-ma (106) ú šú-ha-ra-am (end of text)\*

(1-11) Saha, representing Watniašwe, wife of Šu-Ištar, and Abiya son of Šu-Ištar interrogated Aššur-lamassi, the attorney. Saha, representing Watniašwe, and Abiya said: Our father Šu-Ištar hired you to act as attorney. On the authority of the tablet of the city you should arrest Aššur-rabi and the slave Ewrimuša and they should return whatever they had taken. The Kanesh colony would be your executive power. (11-17) You came here and you cross-examined Aššur-rabi before the envoys of the city; Aššur-rabi said: "I shall give 1 talent and 30 minas of silver to you. Moreover, arrest me in accordance with the tablet of the city and the instruction of my father and escort me."

(18-30) You arrived three years ago, but you did not act in accordance with the tablet of the city or the order of my father; instead, you connived with Aššur-rabi and so you (pl.) caused the loss of 1 talent and 30 minas of my father's silver. Two (other) attorneys arrived here after you and they acted in accordance with the tablets of the city and the order of my father, and then they departed for the city. You were conniving with Aššur-rabi and you refuse to arrest him. You (pl.) caused our father's house to suffer losses. (30-34) The slave

Ewrimuša seized your hem and said: “Come, arrest me and lead me away in accordance with the tablet of the city and my lord.” (34-36) You wanted to kill the slave in front of the plenary assembly of the Karum colony and the envoys of the city. (37-39) You said: “I shall not arrest you; I shall put you to death here instead, or sell you.” (40-43) After you had been paid your hire you sold the cauldron of 40 minas that you had been ordered to bring to the city. (44-50) Well, the plenary assembly of the colony remembers your promise! Because my brothers Nimar-Ištar and Aššur-imitti do not dwell in the house, seize my (other) brother (i.e. Aššur-rabi) and escort the men in accordance with the tablet of the city. You wore out our father’s house.

*(Horizontal ruling separating this section from the following one.)*

(51-61) Aššur-lamassi replied as follows to Saha, who represented Watniašwe, wife of Šu-Ištar, and Abiya, son of Šu-Ištar: When I arrived from the city I did not want to enter your father’s house without your (pl.) father’s representatives and witnesses. I and the representatives put the 4  $\frac{2}{3}$  minas of silver that I seized in your (pl.) father’s house under seal and gave it to ... and he brought it to your (pl.) father. (61-68) The 45 sacks (of grain) that I seized, half barley and half of it wheat, we sold for the debt of Watniašwe, Nimar-Ištar and Aššur-imitti. Furthermore, I and the representatives gave 52 shekels of silver to the Anatolian, also for a debt by Watniašwe.

(68-77) In front of the envoys of the city (and of) the “big men”, at the office of the Kanesh colony, your (pl.) mother Watniašwe and Aššur-rabi promised me 10 minas of silver, but they kept giving me evasive answers to the present day. As for the grain of sowing-time, which for a value of about 10 minas of silver Aššur-rabi promised to me, when you (pl.) arrived you (pl.) sold it for your (pl.) debt and for your (pl.) mother’s debt in the villages. (78-82) I led you (pl.) to the colony and said: Convert (sg.) the grain to [silver] in accordance with the verdict of the city. Let the colony bind [...] and you (pl.) [send] (it) to your (pl.) father.

(83-85) (Abiya replied:) What does this concern you (sg.)? I shall convert/return it by order of our father. The grain belongs to our father alone. .... (86-91) After the son of Aplum came up, you (pl.) removed us and the representatives and it is you (pl.) who are in possession of the house. And as for the sealed room, you (pl.) removed the sealings of the representatives and my sealings, and you the tablets *you put in disorder*. (92-100) You (pl.) sold slave-girls, slaves and oxen for your debt(s), and you had your creditor have a claim on the remaining slave-girls and slaves. You (pl.) took the 1 mina of silver, the price of the oil of the son of Naram-Suen and you took the remainder of the oil away. (100-106) And ... at a rate of 1 mina each you have sold the .... of your (pl.) father. Look, you (pl.) caused your (pl.) father’s house to suffer losses. Moreover, you cancelled the tablet of the city and <...> the servant (*Text ends here*).

## Kt 88/k 971

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(1) *ni-mar-ištar ú a-šur-i-mi-ti* (2) *me-er-ú šu-ištar a-šur-lá-ma-si* (3) *ra-bi<sub>4</sub>-ša-am iš-ú-lu um-ma* (4) *ni-mar-ištar ú a-šur-i-mi-ti-ma* (5) *ša ni-iš a-lim<sup>ki</sup> ú ru-ba-im* (6) *ta-mu-ú lu ú-kà-al* (7) *a-na a-lim<sup>ki</sup> ú be-li-ni* «ni» (8) *a-wa-at-ni : bi-lá šu-ištar* (9) *a-bu-ni a-lá\*-am : im-hu-ur-ma* (10) *iš-tù ša-na-at a-na ra-bi<sub>4</sub>\*-šú-/tim* (11) *e-hu-za-kà\*-ma iš-tù* (12) *ša-na-at i-na kà-ni-iš* (13) *wa-áš-ba-ti ú a-bu-ni a-na kù.babbar* (14) *ma-dí-im iš-pu-ra-kà ba-a-am* (15) *a-ma-lá ṭup-pi-im ša a-lim<sup>ki</sup> lu kù.babbar* (16) *lu kù.gi ma-lá tù-pá-hi-ru* (17) *ma-ha-ar kà-ri-im šu-ku-un-ma* (18) *kà-ru-um li-ik-nu-kà-ku-ma a-na* (19) *a-lim<sup>ki</sup> bi-il<sub>5</sub> ú a-šur-gal a-hu-ni* (20) *iš-ti-kà ri-de<sub>8</sub>-e ša i-na* (21) *na-áš-pè-ra-tim ša a-bi<sub>4</sub>-ni qá-dí-kà-ma* (22) *ša-zu-ú-z-tum : né-nu-ni i-na na-áš-pè-/ra-tim* (23) *tù-ki\*-iš\*-ni-a-ti-ma : a-ta :* (24) *i-na é a-bi<sub>4</sub>-ni : ta-at-ru-ud\*-ni-a-ti-/ma* (25) *ta-kà-al : ú ta-ša-ti* (26) *ú né-nu : i-na ki-da-tim\** (27) *ni-ir-ta-na-pu-ud ú é a-bi<sub>4</sub>-/ni* (28) *lá tù-pá-ra-ar ra-bi<sub>4</sub>-ša-ti-/ma* (lo.e. 29) *a-na kù.babbar-áp a-bi<sub>4</sub>-ni* (30) *pá\*-hu-ri-im ta-li-kam* (31) *ma-ma-an i\*-na me-er-e šu-ištar* (rev. 32) *ni-a-ti kù.babbar-áp šu-ištar ú-kà-lu* (33) *ša-ba-at-ma : ba-a-am ša-am-ša-am* (34) *a-ni-tám a-na a-lim<sup>ki</sup> lu ni-li-ik-ma* (35) *igi a-bi<sub>4</sub>-ni lu ni-iz-ku a-na-kam* (36) *lá wa-áš-ba-ti-ma bu-lá-ti ša é a-bi<sub>4</sub>-ni* (37) *lá ta-ga-ma-ar ú am-tám* (38) *ši-mi-iš-ku-ni-in a-lá-hi-tám* (39) *ša e-mu-uq a-bi<sub>4</sub>-ni ti-de<sub>8</sub>-ú* (40) *a-na hu-li-iq : ta-dí-in* (eras.) (41) *a-šur-lá-ma-si maškim ni-mar-ištar* (42) *ú a-šur-i-mi-ti e-pu-ul lá-ma* (43) *a-li-kà-ni a-tù-nu-ma ú um-ma-ku-nu* (44) *é be-tám tù-qá-li-lá na-áš-pá-kam* (45) *ma-dam : ba-pi-ra-am kù.babbar ú kù.ki* (46) *tù-šé-si-a : a-na kà-ri-im [um\*-m]a\*-ku-nu* (47) *ku-nu-ti ú a-šur-gal a-na š[i-i]p-ri\** (48) *ú kà-ri-im ar\*-de<sub>8</sub>-ku-nu-ma\* ší-ip-ru* (49) *ú kà-ru-um ú-sà-ni-ku-nu\*-ma 12 ma-na kù.babbar* (50) *15 gín kù.ki tù-dí-na-tum ú kà-sà-tim* (51) *2 ½ ma-na kù.babbar ší-im ba-pi-r[i\*-i]m* (52) *ša ás-qú-dum i-dí-nu-ši-ni an-n[a]-kam* (53) *ša a-mu-tim ú zi-ra-am ša [x g]ú\** (54) *um-ma ší-it-ma : mi-ma a-ni-im* (55) *ša ú-šé-ši-ú : igi ší-ip-ri ša a-lim<sup>ki</sup>* (56) *ú kà-ri-im ú-ta-ar um-ma a-šur-gal-ma\** (57) *ú a-na-ku mi-ma ša al-qé-ú ú-ta-ar* (58) *a-ši-a-ti ša-zu-za\*-tum ša a-bi<sub>4</sub>-ku-nu* (59) *ik-lá-a-ni a-lá-an : 4 ⅔\* ma-na kù.babbar* (60) *ú 15 kà-ar-pá-tim ša ša-am-ni-im* (61) *lu ša\*-ha-ra-tim lu ra-bi<sub>4</sub>-a-tim* (u.e. 62) *a-lá-an a-ni-im mi-ma i-na\* é\** (63) *a-bi<sub>4</sub>-ku-nu : lá ak-šu-dam ki-ma* (64) *ta-ú-ri-im 1 ma-na kù.babbar* (l.e. 65) *40 na-ru-uq mi-iš-lam e\*-a-am mi-iš-lá\*-am\* ar-ša-tim a-na hu-bu-ul* (66) *ú-mi-ku-nu : ni-dí-in mi-ma : a-ni-im ma-ha-ar ší-ip-ri ú kà-ru-um* (67) *ší-ip-ru\* ša a-lim<sup>ki</sup> ú kà-ru-um kà\*-ni\*-iš\* li-ik-nu-uk<sup>sic</sup>-ma* (68) *ú-ma-ma : lu nu-ši šu-ma ṭup-pá-am ú-ra-am lá\* ta-mu-a-ni* (69) *ig-ri-a ú\* ga-am-ra-am dí-na-ni-ma lá-ta-lá-ak ha-ra-ni* (70) *i-na qá-qí-dí-a lá ta-sá-hu-ra\**

(1-4) Nimar-Ištar and Aššur-imitti, sons of Šu-Ištar, interrogated Aššur-lamassi the attorney as follows: (5-8) He should keep in mind what has been sworn by the city and the ruler! Bring (pl.) our case to the city and our lord! (8-13) Šu-Ištar, our father, appealed to the city and he hired you to act as attorney a year ago, and for a year you have been living in Kanesh. (13-20) Well, our father has sent you for a lot of silver. Come, place all the silver and gold that you brought together before the colony in accordance with the tablet of the city; let the colony put it under seal for you and then bring it to the city. Moreover, take our brother Aššur-rabi with you. (20-27) Although we are representatives together with you, yourself, by authority of the messages of our father, you removed us by means of the messages and you chased us out of our father's house. While you are eating and drinking, we keep running around in open country! (27-35) You must not break up our father's house! You are an attorney and you came to assemble the silver of our father. Seize whoever among

us, the children of Šu-Ištar, holds silver of Šu-Ištar. Come, let us go to the city this very day and settle accounts before our father. (35-40) You should not be staying here and spend assets of our father's house. You *allowed* the slave-girl Šimiškunin, the flour-processor, to *perish* although you are aware of our father's financial situation.

(41-57) Aššur-lamassi, the attorney, replied to Nimar-Ištar and Aššur-imitti: Before I arrived you (pl.) and your mother plundered the house; you took out much stored grain, beer bread, silver and gold. I led you, your mother, you (pl.) and Aššur-rabi to the colony, (namely) to the envoys and the colony, and the envoys and the colony cross-examined you (pl.) with (this result): (you took) 12 minas of silver, 15 shekels of gold: toggle pins and cups, 2 ½ minas of silver as the price of the beer-bread which Asqudum had given to her, a ring of *amutum* and a cauldron of [x] talent weight. She (i.e., the mother) said: "All this that I took out, I will return in front of the envoys of the city and the colony." Aššur-rabi said: "Also I will return whatever I took."

(58-66) For this reason your father's representatives held me back. Apart from 4 ⅔ minas of silver and 15 jars of oil, both small and big, apart from this I did not obtain anything else in your (pl.) father's house. By way of paying back we gave 1 mina of silver and 40 sacks, half barley half wheat<sup>52</sup>, for the debt of your (pl.) mother – all this in front of the envoys and the colony. (67-70) And let the envoys of the city and the Kanesh colony put (the document) under seal and let us leave today. If you (pl.) do not want to bring the tablet, give me my hire and expenses and I will depart. I am on my way. You (pl.) must not harrass me.

## Kt 88/k 972

Publication: Donbaz 2008: 219-221; collated.

(1) *a-na šu-ištar* ah.me *ša ištār* (2) *qí-bi-ma um-ma a-šur-lá-ma-sí* (3) *ni-mar-ištar* ù <sup>d</sup>im-gal-ma (4) *i-na ú\*-mì-im : ša a-šur-lá-ma-lsí* (5) *ra-bi-iš-kà : i-li-kà-ni* (6) *a-na é be-tí-kà : né\*-ru\*-ub\*-ma\** (7) *a-ša-at-kà ù me-er-ú-kà* (8) ù *ás-qú-dum : ša-zu-úz\*-ta-kà* (9) *é be-tám : ú-kà-lu : a-lá-an* (10) 5 lá\* ⅓\* *ma-na kù.babbar ù ša-am-nam* (11) 15 *kà-ar-pá-tim : ša-am-nam* (12) *lu ra-bi<sub>4</sub>-a-tim lu ša\*-ha-ra-tim* (13) *še.am : 45 na-ru-uq ša i-na* (14) *me-ra-dš-tim : a-šur-gal : ub-lá-ni* (15) *a-lá-an : a-mì-im : mì-ma i-na* (16) «i-na» *é be-tí-kà : lá ni-ik-šu-ud* (17) *lu sú-pá-nu : lu kà-lá-pu-um* (18) *lu pá-šu-um : lu ú-tù-ub-tám* (19) *mì-ma : ša i-na ṭup-pì-im* (20) *ta-al-ta-na-pá-ta-ni : i-na* (21) *é be-tí-kà : lá i-ba-ší : a-ša-áp-ra-tim* (lo.e. 22) *ga-am-ru : ki-ma : i-ṭup-pì-k[ā]* (23) *ma-da-tum : lá-pu-ta-ni* (24) *a-šur-gal ù a-ša-at-kà : a-na* (25) *kà-ri-im : ni-ir-de<sub>8</sub>-m[a]* (rev. 26) *[kà-r]u-um : ú-sà-ni-iq-šu-nu-ma* (27) *[um-ma] a-šur-gal-ma : igi kà-ri-im-ma* (28) *[mì-ma :] ša al-qé-ú-ni : ú-ta\*-ar\*-ma* (29) *kù.babbar 10 ma-na : e-pá-dš-ma : a-še-er* (30) *a-bi-a : a-lá<sub>7</sub>-ak : a-ša-at-kà* (31) *ú-sà-ni-qú-ma : um-ma ší-it-ma* (32) 15 *gín kù.gi an-na-qí ša um-mì-kà* (33) *tù-dí-na-tim ù kà-sà-tim ša ší-ip-ru* (34) *ip-qí-du\*-ni-ni : ú-ta-ar* (35) *ú\* um-ma ší-it-ma 12 ma-na kù.babbar* (36) ù 2 ½\* *ma-na kù.babbar ší-im : ba-pì-ri* (37) *ša ás-qú-dum : i-dí-nu-ší-ni ù šu-a-tí* (38) *ú-ta-ar-ma : ki-ma : ta-ú-ri-im* (39) 40 *na-ru-uq še.am ù ar-ša-tum* (40) *ú\* 1 ma-na kù.babbar a-hu-bu-ul* (41) *a-ší-tí-kà : ni-dí-in : mì-šu-um* (42) *a-wi-il<sub>5</sub>-tám : ù me-er-e\*-kà\* : né-*

<sup>52</sup> For the writing *e-a-am*, see Dercksen 2011b: 17.

*nu!*\* (43) *ni-it-ru-ud : hu-bu-lá-am : ma-da-/ma* (44) *a-ša-at-kà : té-pu-uš-ma : i-na* (45) *be-tim : tū-ši : um-ma né-nu-ma* (46) *a-na be-tim : er-ba : ki-ma : hu-bu-/lu-ša* (47) *ma-du : a-na be-tim : e-ra-ba-am* (48) *lá ta-mu-a : ù ú\*-ma-am : be-el* (u.e. 49) *hu-bu-lim : be-tám : ú-ša-am-du-lú* (50) *né-nu : kà-<sup>1</sup>li<sup>1</sup> \*-<sub>5</sub>[x] \*-il<sub>5</sub>\* be-ti-kà* (51) *né\*-pá-dš : a\*-[š]a\* : hi-im-ṭá-tim* (l.e. 52) *ta-dš-ta-áp-ra-ni-a-ti : ša ak-lim ù ši-ik-ri-im né-nu* (53) *a-ma-kam : puzur<sub>2</sub>-ištā ù šu\*-hu-RU : ša-i-il<sub>5</sub> : ki-ma a-ša-at-kà* (54) *ù me-er-e-kà : a-na be-tim : nu-ta-na-ru-ma : lá i-ZU-ni* (55) *a-ši-a-ti : a-šur-lá-ma-si : ni-ik-lá : i-na ha-ar-pi* (56) *té-er-ta-kà nu-za-kà-ma : a-šur-gal ù a-šur-lá-ma-si* (57) *ni-ṭá-ra-da\*-am\**

(1-3) Speak to Šu-Ištar, the priest of Ištar, from Aššur-lamassi, Nimar-Ištar and Adad-rabi.

(4-9) We entered your house on the day that your attorney Aššur-lamassi arrived, and (now) your wife and your sons and your representative Asqudum are in possession of the house.

(9-16) Apart from 4  $\frac{2}{3}$  minas of silver and oil, 15 jars of oil, both big and small, and grain, 45 sacks which Aššur-rabi brought during sowing-time, apart from that, we did not find anything in your house. (17-22) The container, the ax, the hatchet, the furniture, anything you keep writing about, was not in your house; all (items) have been given as pledges. (22-30) Because many things have been written on your tablet, we led Aššur-rabi and your wife to the colony and the colony cross-examined them and Aššur-rabi said before the colony: "I shall return all that I took and I shall produce 10 minas of silver and go to my father." (30-34) They cross-examined your wife and she said: "I shall return the 15 shekels of gold, the rings of your mother, toggle-pins and cups which the envoys had entrusted to me." (35-38) She also said: "I shall return to him the 12 minas of silver and the 2  $\frac{1}{2}$  minas of silver, the price of the beer-bread that Asqudum had given her (i.e. "me")." (38-41) By way of repaying we gave 40 sacks of barley and wheat and 1 mina of silver for your wife's debt. (41-45) Why did we drive out the woman and your sons? Your wife had contracted many debts when she left the house. (45-48) We said: "Enter (pl.) the house!" But since her debts are many she refuses to enter the house. (48-51) And today the creditors are pressurizing for the house. We are doing the ... of your house. (51-57) Because you have written angry words to us, are we (only interested in) eating and drinking? Ask Puzur-Ištar and Šu-Hubur overthere (who can confirm) that we keep bringing back your wife and sons to the house but that they refuse.<sup>53</sup> For that reason we held Aššur-lamassi back; we will finish your case in spring and then send Aššur-rabi and Aššur-lamassi to you.

<sup>53</sup> Reading *i-mu-ú-ni* for *i-zu-ni*.



## THE MARI EPONYM CHRONICLE. Reconstruction of the Lay-Out of the Text and the Placement of Fragment C

Rafał Koliński<sup>1</sup>

### *Abstract*

*The Mari Eponym Chronicle (MEC) is represented by eleven fragments of clay tablets, which were excavated in the palace of king Zimri-Lim at Mari. These tablets provide precious information on the political developments in Northern Mesopotamia during almost a hundred years. For each year covered by the chronicle, the name of the acting eponym is given, as well as what was considered the most important political event that happened during that year. Following its publication by M. Birot in 1985, various scholars studied this important document. A fresh reconstruction of the text is presented in this article, which also contains a discussion of the possible function of the extant copies.*

### INTRODUCTION<sup>2</sup>

The Mari Eponym Chronicle (abbreviated MEC) constitutes one of the most important sources for the reconstruction of the history and chronology of the Old Babylonian period, especially of North Mesopotamia. The text, which is an account of the history of the dynasty to which Samsī-Addu, king of Assur belongs, consists of a long series of historical entries starting with the names of subsequent eponyms in the city of Assur. It was probably composed to be recited during the commemorative rituals to former kings (*kispum*).<sup>3</sup> The text covers a period of nearly 100 years,<sup>4</sup> starting with the enthronement of Narām-Suen, king of Assur, and ending most probably in the year when Aššur-emūqī was eponym, two years after the death of Samsī-Addu.

Fragmentary tablets containing MEC have been discovered in Mari during several seasons since 1936,<sup>5</sup> but were published by Maurice Birot only in 1985. The publication provided photographs, copies, transliterations, translations and a general commentary on the identified 11 tablet fragments, some of which Birot was able to join. The text was later commented upon several times, mainly by authors of historical studies,<sup>6</sup> though only rarely corrections and improved

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<sup>2</sup> I am greatly indebted to Denis Lacambre for scrupulous reading of the manuscript, correcting my mistakes and suggesting improvements to the text. The remaining faults, as well as expressed views, are, of course, mine.

<sup>3</sup> Durand and Guichard 1997: 42.

<sup>4</sup> The exact number of years was written in the colophon, but the numeral is damaged (Birot 1985: 220, 232).

<sup>5</sup> The first fragment found was S.115-26 (Dossin 1939: 99).

<sup>6</sup> Whiting 1990: 181-84; Durand and Guichard 1997: 42-43; Veenhof 2000: 139; Charpin and Ziegler 2003: 9; Veenhof 2003: 50-51; Charpin 2004: 49; Eder 2004: 200-203; 2008: 59-60; Kryszat 2004: 4-5; Pruzsinszky 2009: 154-156.

readings of the original edition were proposed.<sup>7</sup> A slightly corrected transliteration and translation were published by Glassner in 1993,<sup>8</sup> and by Yuhong in 1994.<sup>9</sup> A new publication of MEC was announced by Durand in 1997,<sup>10</sup> but, to my knowledge, it has not appeared until today.

In the publication by Birot the extant fragments of MEC were reconstructed as a non-continuous text; each of its seven sections was marked by a capital letter. The position of section A and of section G was clear, because the former was written on the top of a tablet with a preserved upper edge, while the latter was written on the bottom of the reverse of the same tablet, and contained a colophon. With the help of joins and overlapping text Birot reconstructed the sequence of the other fragments; this sequence is generally accepted to this date. His publication demonstrated that fragments A and B were separated by a short gap only, and a similar situation was suspected in the case of fragments E, F and G.<sup>11</sup> The remaining two small fragments of the text, C and D, were “floating” in a long gap between fragments B and E. Birot offered only general information on the period covered by MEC, based on the damaged numeral in the colophon; they surviving signs could be any number of years between 70 and 100<sup>12</sup>. Such interval allows for only a very general reconstruction of the length of gaps in the text. This situation changed when copies of the Kanesh Eponym List (abbreviated KEL) were published, especially the latest of them, KEL G (Günbatı 2008). Part of the sequence of the eponyms in KEL G is parallel to the period covered by MEC. Consequently, it was possible to reconstruct some names in MEC which were either only partly preserved, or entirely lost, as well as to attempt to determine the time interval separating some of the preserved fragments of the chronicle (fragments A and B and, in more general terms, B and E). The Revised Eponym List (REL) of Barjamovic *et al.* (2012: 3–40) provided a new and improved reconstruction of the sequence of eponyms, especially concerning the eponyms that had been in three gaps in KEL G.<sup>13</sup> Barjamovic and his co-authors were able to identify the original position of MEC fragment D, just before the sequence of entries on fragment E.

The aim of the present paper is to determine the placement of MEC fragment C, which is important for the reconstruction of the historical context of the whole list. Earlier attempts are unsatisfactory because the identification of the eponym names preserved in this section are uncertain. For instance, Birot proposed to read there two relatively well-preserved names, Dadmi and Tari[-x].<sup>14</sup> Such names, however, are not known from KEL G. In 1990 Durand proposed to read in line 3' on this fragment only one eponym name, Ibni-Addu, and to identify him with the eponym known from administrative tablets of Mari, who also appears in MEC fragment E (eponym E.4).<sup>15</sup> This can hardly be accepted, because the entry

<sup>7</sup> For instance in Durand 1990: 274.

<sup>8</sup> In French. An English edition of the book appeared in 2004 (Glassner 2004: 160–165).

<sup>9</sup> Yuhong 1994: 64–65, 71–72, 107, 110, 161–162.

<sup>10</sup> Durand and Guichard 1997: 42, n.143.

<sup>11</sup> Birot 1985: 220.

<sup>12</sup> Cf. note 4.

<sup>13</sup> This reconstructed sequence of eponyms is not beyond discussion, especially in the part parallel to the final section of MEC and onwards, see Koliński 2014.

<sup>14</sup> Birot 1985: 231, 234.

<sup>15</sup> Durand 1990: 274–275.

for eponym E.4 is only one line long, while it takes nine lines in the passage reconstructed by Durand. In all cases where the same section of text is known from two (or more) fragments, the duplicates have nearly exactly the same wording (the only exception is the presence or absence of the preposition *ina* at the beginning of the entry). This fact casts serious doubt on the identification proposed by Durand. The placement of fragment C was not discussed by Günbattu or by Barjamovic, Hertel and Larsen in their study of KEL G. Nevertheless, the latter authors tentatively placed it immediately after MEC fragment B in their reconstructed eponym list.<sup>16</sup> However, none of the names of eponyms following the last entry of fragment B on the duplicates could be recognized on MEC fragment C, what precludes the acceptance of this proposal.

In the case of MEC fragment C, the conventional method of reconstructing the original position of the fragment by identifying the eponyms present on it with those preserved on other fragments of MEC or in REL is not effective. Therefore, the present author decided to follow a different approach. Fragment C is the only surviving section of text on the reverse of tablet A.1288, which originally had two columns of text on each face. Therefore, it may be assumed that the position of this fragment can be established by estimating the number of lines originally written on the obverse of the tablet (based on parallel text on other MEC tablets). This estimate then can be used to reconstruct the number of lines missing between the end of column II of A.1288 and the section of text holding the MEC fragment C.

### Previous research on the outline of MEC

Birot did not make any formal distinction between the preserved tablet fragments, despite the fact that he described them quite carefully.<sup>17</sup> This is surprising, because even a cursory glance at the published copies and photographs of the tablet fragments allows one to discern at least three different formats: 1) a wide tablet with one column of text on each side, 2) a narrow tablet with one column of text on each side, and 3) a wide tablet with two columns of text on each side.

These differences were commented upon by Veenhof in his seminal study of KEL,<sup>18</sup> where he suggested that the preserved tablet fragments belonged to two different editions of the text. "Edition 1" was written on a wide, single-column tablet about 10.5 cm wide. The original height of the tablet has not been preserved, but Veenhof estimated that it contained about 75 lines of text on each side, judging by the number of eponym names preserved on the tablet, the eponyms of KEL, and information from an inscription of Shalmaneser I that the time interval between kings Erišum and Samsī-Addu was 159 years (Grayson 1987: 189). With the measured average height of the lines of 0.35 cm<sup>19</sup> the height of the tablet would be about 26 cm. "Edition 1" is represented by fragments M.7481+M.11250, S.24-1, S.24-2, S.24-3, and A.1416a-b. According to Birot, they all may or may not have belonged to the same tablet.

<sup>16</sup> Barjamovic *et al.* 2012: Appendix I, 95.

<sup>17</sup> Birot 1985: 219-220.

<sup>18</sup> Veenhof 2003: 50-51. A draft of a new study on MEC by Prof. Veenhof was available to me only after submission of the present paper.

<sup>19</sup> Birot 1985: 220.

“Edition 2”, as observed by Veenhof, was written in short lines (about 5.5 cm long), and occasionally the preposition *ina* was omitted at the beginning of the entry for a year. Veenhof also suggested, without giving any reason, that the text of “Edition 2” was shorter than that of “Edition 1”, that it started later than “Edition 1”, and ended earlier as well. The text of “Edition 2” is preserved on a broad tablet, with two columns of text on a side (A.1288), and three smaller fragments, with only one narrow column of text on a side of the tablet (M.5918, M.8566, and S.115-26). Veenhof pointed out that as a rule, one long line of text in “Edition 1” corresponds to two shorter lines in “Edition 2”.<sup>20</sup>

## The layout of the text of MEC

### *General remarks*

The reconstruction presented below is based on certain assumptions. It follows Veenhof’s suggestion that one line of text on a wide tablet (usually 10.5 cm long) corresponds to two lines in the narrow rendering of the text (about 5 to 5.5 cm long). However, Veenhof’s other observation that “Edition 2” started later and ended earlier than “Edition 1” is not accepted here, due to the lack of evidence provided by its author to support this claim. Conversely, given the close similarities of the text evidenced on duplicates, it is assumed here that both texts are parallel, and that they start and end in the same year.

Prior to the proper analysis of the distribution of the text, it is necessary to remark on variants of arrangement of a single line of text present in different editions. In “Edition 1” the text is carefully outlined and written in small, elegant signs. The entry for a year may be outlined in three different ways. The first one, called here a “long line”, has the preposition *ina* and the following name of the eponym is placed close to the left edge of the tablet. Each line is separated from the next by a horizontal ruling, and it is assumed that this was over the entire length of the line. The second one, called here a “short line”, features the preposition *ina* and the eponym name indented with respect to the beginning of the column by approximately six or seven signs. The example of lines 2-5 on the obverse of M.7481+ demonstrates that entries in such lines should be quite short, because there are no signs in the preserved final part of these lines, close to the right edge of the tablet. As in the case of the “long line”, the “short line” has a ruling above and below it, which always starts at the left edge of the tablet. The third variant is a “medium line”, in which the text starts with an indentation several signs long. However, the line does not introduce a new entry for the year but contains a continuation of the former one. This variant can be arranged in two different ways. If the continuation is considerably shorter than a full line, the text begins approximately in the middle of the line and is not separated from the previous line by a ruling. If the continuation is longer than one line, all the subsequent lines start with an indentation of roughly six signs, and are separated with rulings that do not start on the left edge of the column, but under the first cuneiform sign of the line.

In “Edition 2” two different ways of arranging the text in a single line can be observed. A new entry always starts on the left side of the column, and continuation lines follow the same

<sup>20</sup> Veenhof 2003: 50, n. 86.

pattern; they are left aligned and form a “full line”. There are, however, exceptional situations, where the continuation of a year entry is written in a “broken line”, aligned to the right margin of the column. In some cases these lines contain only a few signs, but in other cases they cover more than half of the length of a full line. Characteristically, the “broken lines” are never separated by a ruling from the signs of the preceding line.

It was already mentioned that there is a serious difference in the length of lines on tablet A.1288, featuring two columns of text (each about 5.4 cm long) per side, and on tablet M.7481+, containing a single column of text (about 10.5 cm long) on each side. Due to the above described different ways of laying out the text in a single line, the rule of correspondence outlined by Veenhof could prove misleading. Nonetheless, for the time being, this rule will not be disregarded, as it allows to establish an approximate correspondence between the amount of text in “Edition 1” and in “Edition 2”.

Veenhof also observed that one side of the “Edition 1” tablet held approximately 75 lines of text.<sup>21</sup> However, the reverse is not completely covered by text, as there is a blank space corresponding to about ten lines (in fact, a two-line-long colophon of the tablet is placed there). Consequently, the full text of MEC in “Edition 1” should cover about 140 lines, each 10 cm long. If the same amount of text was written in lines 5.0 to 5.5 cm long, typical for “Edition 2”, the number of lines should be doubled, reaching 280 lines.

According to Birot, the preserved height of tablet A.1288 is 13.5 cm; he speculated that the original height of the tablet was between 18.5 and 20 cm.<sup>22</sup> If this estimate is realistic, the complete tablet should be about 50% higher than the preserved fragment. This supposition hints at the original number of lines on the tablet, which should be thus proportionally bigger than the number of preserved lines. With 30 lines preserved on the obverse of the tablet, it may be assumed that each column may have contained as many as 45 lines of text. Another estimate proposed by Durand suggests that one column contained about 35 lines.<sup>23</sup> Consequently, four columns of text written on tablet A.1288 should contain between 140 and 180 lines, that is approximately half of the expected number of lines of the full text of MEC. This clearly demonstrates that “Edition 2” of MEC was most probably written on two tablets, of which only the first one survived, and that the text written on A.1288 should roughly correspond to the content of the obverse of the single tablet of “Edition 1”, while the text of the hypothetical second tablet would correspond to its reverse.

### **The distribution of text on the obverse of tablet A.1288**

The first preserved line of text in column I of A.1288 contains the eponym Maši-ili (REL 109). The number of lines missing at the top of this column can be reconstructed on the basis of the manuscript of “Edition 1” (M.7481+11250), in which the first line of the original composition is partly preserved, allowing to read a formula marking the start of the rule of Narām-Suen of Assur. According to KEL, his first regnal year fell in the eponymy of Šu-Suen

<sup>21</sup> Veenhof 2003: 50.

<sup>22</sup> Birot 1985: 219.

<sup>23</sup> Durand 1990: 275.

(REL 104) and it is expected this name should appear in line 2 of “Edition 1”. This means that the introduction to the text, and five eponym entries (from Šu-Suen to Akutum, REL 104-108) are missing from the beginning of column I of A.1288. The state of preservation of the top of M.7481+ does not allow to read the full text of the first entries (even the names of eponyms are sometimes not preserved), but the visible lacunas on the tablet allow to estimate the length of lines. The first one, containing the already mentioned formula referring to the ascent to the throne by Narām-Suen, fills a complete line and needed to be written on A.1288 in two “full lines”. The following four entries (lines 2-5) are “short lines”, and each of them was most likely rendered by a “full line” on A.1288. The next line, referring to the eponymy of Akutum, is again a “long line”, and should account for two lines on A.1288. The following line 7 is short, and this is where the name Maši-ilī should be restored, the first name preserved on A.1288. It can be thus established that there are eight lines missing at the top of A.1288 column I (cf. Table 1). Consequently, the number of missing lines at the beginning of column II is ten (eight lines which are not preserved in column I and two lines of difference resulting from the state of preservation of both columns).

| <i>Eponym name</i>         | <i>REL</i> | <i>M.7481+11250,<br/>lines (length)</i> | <i>A.1288, lines</i> |
|----------------------------|------------|---|----------------------|
| Introductory formula       | -          | 1 (long)                                | Col. I [1-2]         |
| Šu-Suen                    | 104        | 2 (short)                               | [3]                  |
| Aššur-malik                | 105        | 3 (short)                               | [4]                  |
| Aššur-imittī               | 106        | 4 (short)                               | [5]                  |
| Enna-Suen                  | 107        | 5 (short)                               | [6]                  |
| Akutum                     | 108        | 6 (long)                                | [7-8]                |
| Maši-ilī                   | 109        | 7 (short)                               | [9] = 1’             |
| Iddi(n)-ahum               | 110        | 8 (short)                               | [10] = 2’            |
| Samaya/Samani <sup>1</sup> | 111        | 9 (short)                               | [11] = 3’            |
| Ili-ālum/ennam             | 112        | 10 (long?)                              | [12-13] = 4’-5’      |

Table 1. Reconstruction of the length of the break at the beginning of column I of A.1288 on the basis of tablet M.7481+11250.

The length of the break at the end of column I is more difficult to reconstruct. The last, fragmentarily preserved line of this column is line [36] = 29’. However, the last, partly preserved eponym name is that of Buzi/aya (REL 125) in line [30] = 23’. Line 23’ bears traces of another name, which on the basis of KEL G should be read as Dādiya (REL 126), and the entry for this year covers a “full line” and a “broken line” without a ruling between. The next year, that of Puzur-Ištar (REL 127), is probably another two-line entry,<sup>24</sup> but it is impossible to decide whether the two remaining lines of column I contained one or two eponym names. As there is no verb at the end of line 28’, and the form *išbat*, which often terminates the entry for a year, may be present at the end of line 29’, another two-line entry seems to be a more plausible reconstruction. Thus, the discussed lines should contain information on the year of Isaya (REL 128) and, possibly, of Abu-šalim (REL 129). There is also clear evidence that at least two lines

<sup>24</sup> Glassner 2004: 162-163.



of text are missing at the bottom of column I, since line 24' of column II, which corresponds to line 29' of column I, is followed by two more lines.

The first preserved name in column II is Šu-Bēlum (REL 140) indicating that there are ten eponym entries (REL 130-139, Aššur-rē'i – Itūr-Aššur) lost in the lacuna between column I and column II. It has already been established that two lines or more are missing at the bottom of column I, and ten lines were lost at the top of column II. At the very least, this gives a figure of 12 lines missing. Moreover, it seems very likely that some text was written on the lower edge of the tablet as well.<sup>25</sup> This is the case of two other MEC tablets with preserved lower edge. Tablet S.115-26, which is 1.9 cm thick in the central part, has two lines on the bottom side, while tablet M.8566 (no thickness given) – three lines. According to Birot, tablet A.1288 is 2.5 cm thick in the central part. A comparison to two other manuscripts leads to the conclusion that two or more likely three lines of text could have been written on the bottom side of the tablet. This would increase the minimum number of missing lines to 14-15. The overall number of missing lines can be made even more precise on the basis of a duplicate of the text of A.1288 preserved on tablet S.115-26. As it contains one column of text, 5.6 cm wide, it is highly probable that the layout of the text on this tablet, and on a single column of A.1288 was similar.<sup>26</sup> A study of S.115-26 shows that entries for eponyms REL 134-139 are each one line long (Table 2). The first longer entry is for Šu-Bēlum (REL 140) with two lines, exactly as its equivalent on A.1288. The following eponym, Šarrum-Adad (REL 141), has a four-line-long entry in both texts. This seems to confirm the assumption concerning the exact correspondence of the length of entries on comparable tablets. Thus six out of ten lines missing on the top of column II were used for entries of years REL 134-139, leaving a minimum of nine lines (or eight, if the entry for Abu-šalim was two lines long) for three or four eponyms (REL 130/131-133). With a typical entry length of one or two lines in the preceding and in the following part of the list (the first longer, four-line entry is in the year of Šarrum-Adad, REL 141) it seems more than enough. However, as was already mentioned, it is necessary to add at least one line at the end of column I, since the lower edge of the tablet is not preserved.<sup>27</sup> In this situation, it can be assumed that not more than three lines are missing at the bottom of the tablet, below the lowermost preserved line, raising the number of missing lines to 18. Consequently, the year of Abu-šalim can be allotted two lines (see Table 2), while the formula for Aššur-rē'i (REL 130) would fill one up to three missing lines at the end of column I. The entry for the year of Ṭāb-Aššur can be plausibly placed on the lower edge of the tablet, leaving two double line year entries for the unaccounted first four lines of column II.<sup>28</sup>

<sup>25</sup> This seems to be typical for most of the tablets, including the multi-columned ones, cf. below, p. 9-11.

<sup>26</sup> Veenhof 2003: 50, n. 86.

<sup>27</sup> It was either damaged beyond recognition or broken off, as Birot, when describing of the state of preservation of the tablet, made no remark concerning its upper edge (1985: 219).

<sup>28</sup> Even if the lower edge of the tablet was not inscribed, four lines would be enough to accommodate the entries for years REL 131-33.

| Eponym name        | REL   | Number of lines<br>in A.1288 | A.1288                  | S.115-26                             | S.24-1+                     |
|--------------------|-------|------------------------------|-------------------------|--------------------------------------|-----------------------------|
| Buza/iya           | 125   | 1 line                       | <b>Col. I</b> 30 = 22'  | -                                    | -                           |
| Dadiya             | 126   | 2 lines                      | 31-32 = 23'-24'         | -                                    | -                           |
| Puzur-Ištar        | 127   | 2 lines                      | 33-34 = 25'-26'         | -                                    | -                           |
| Isaya              | 128   | 2 lines?                     | 35-36/7 = 27'-28'/9'?   | -                                    | -                           |
| Abu-šalim          | 129   | [2 or 3 lines]               | 36/7-38 = 28'/9'-[30']  | -                                    | -                           |
| Aššur-rē'i         | 130   | [1 or 2 lines]               | 39-40 = [31'-32'?]      | -                                    | --                          |
| Tāb-Aššur          | 131   | [3 lines]                    | <b>Lo.E.</b> [1-3]      | -                                    | -                           |
| Šu-Rama            | 132   | [2 lines]                    | <b>Col. II</b> [1-2]    | -                                    | -                           |
| Suen-išmeanni      | 133   | [2 lines]                    | [3-4]                   | -                                    | -                           |
| Aššur-malik        | 134   | 1 line                       | [5]                     | Obv. 1'                              | -                           |
| Dan-Ea/Daniya      | 135   | 1 line                       | [6]                     | 2'                                   | -                           |
| Enna-Suen          | 136   | 1 line                       | [7]                     | 3'                                   | -                           |
| Aššur-balaṭi       | 137   | 1 line                       | [8]                     | 4'                                   | -                           |
| Enna(m)-Suen/Aššur | 138   | 1 line                       | [9]                     | 5'                                   | -                           |
| Itūr-Aššur         | 139   | 1 line                       | [10]                    | 6'                                   | -                           |
| Šu-Bēlum           | 140   | 2 lines                      | 11-12 = 1-2'            | 7-8'                                 | -                           |
| Šarrum-Adad        | 141   | 4 lines                      | 13-16 = 3'-6'           | <b>Lo.E.</b> 1-2,<br><b>Rev.</b> 1-2 | -                           |
| Šu-Laban           | 142   | 1 line                       | 17 = 7'                 | 3                                    | -                           |
| Aššur-imitti       | 143   | 3 lines                      | 18-20 = 8'-10'          | 4-6                                  | -                           |
| Dadaya             | 144   | 1 line                       | 21 = 11'                | 7                                    | -                           |
| Dadaya II          | 145   | 2 lines                      | 22-23 = 12'-13'         | 8-9                                  | -                           |
| 3 eponyms          | 146-8 | 3 lines                      | 24-26 = 14'-16'         | -                                    | -                           |
| Šu-Suen            | 149   | 1 line                       | 27 = 17'                | -                                    | Obv. 1'(?)                  |
| Abu-šalim          | 150   | 2 lines                      | 28-29 = 18'-19'         | -                                    | 2'(?)                       |
| Šudaya             | 151   | 1 line                       | 30 = 20'                | -                                    | 3' (?)                      |
| Šu-Dādum           | 152   | 1 line                       | 31 = 21'                | -                                    | 4'(?)                       |
| Aššur-tukultī      | 153   | 4 lines                      | 32-36 = 22'-26'         | -                                    | 5' (long)-<br>6' (medium)   |
| Puzur-Ištar        | 154   | 1 or 2 lines?                | [37-(38) = 27'-(28')]   | -                                    | 7' (?)                      |
| Atanah             | 155   | 3 lines                      | <b>Lo.E.</b> [1-3]      | -                                    | 8' (long)-<br>9' (medium)   |
| Erišum             | 156   | 3 or 4 lines                 | <b>Col. III</b> [1-3/4] | -                                    | 10' (long)-<br>11' (medium) |

Table 2. Reconstruction of the length of the break at the end of column I, lower edge, and the top, and the bottom of column II of A.1288 on the basis of tablets S.115-26 and S.24-1+.

Having determined the number of missing lines at the bottom of column I it is possible to do the same for column II. The last datable entry in this column is a long description of events of the year of Aššur-tukultī (REL 153) (lines 22'-26'), duplicated on tablet S.24-1+ in one "long line" and in one "medium line" (lines 5'-6'). Line 7' of S.24-1+ holds an entry for the eponym of Puzur-Ištar (REL 154); it is a "short line" which should correspond to a single line

of text below the preserved part of column II. The entry for the next eponym, Atanah (REL 155) is present on the obverse of S.24-1+ in lines 8'-9; on tablet A.1288 it would most likely be located on the lower edge of the tablet. The subsequent entries on S.24-1+ (for eponyms REL 156-162) should be reconstructed in column III of A.1288, the first eponym being Erišum (REL 156). This reconstruction allows to establish precisely the number of lines missing at the bottom of the obverse of A.1288, which, as mentioned above, was most likely two or three. The evidence provided by S.24-1+ speaks very strongly in favor of one or two missing lines, depending on whether a single-line entry for eponym Puzur-Ištar (REL 154) constituted a "long line" or a "short line". The entry for Atanah, composed of one "long" and one "medium" line, would fit quite accurately the space available on the edge of the tablet. The reconstruction of the content of column I lines 31'-32'/33' needs to be changed accordingly.

### **Distribution of columns on the reverse of multi-columned tablets**

Before MEC fragment C can be placed in the sequence of eponyms, it is necessary to address one more question: does the fragment of the text preserved in the left column on the reverse of A.1288 tablet belong to column III or to column IV? The question may seem immaterial, as Birot, in the original publication of MEC, identified it as column IV (1985: 231), and was followed by Whiting.<sup>29</sup> Other authors did not refer to this identification at all; however, it seems that Barjamovic, Hertel and Larsen considered it to be column III, as they placed eponyms of fragment C immediately after eponyms of fragment B of MEC.<sup>30</sup> As this change of the order of columns would have a very strong effect on the placement of fragment C, it is necessary to verify the accuracy of the column identification by a scrutiny of arrangement of text on the reverse of multi-columned tablets of the Old Assyrian and Old Babylonian periods.<sup>31</sup>

The younger Assyrian colony period in Anatolia yielded at least two four-column tablets: kt 00/k 10, the Kanesh-Hahhum treaty, and kt 01/k 287, the manuscript of KEL G. The treaty was written on a partly preserved tablet with two columns of text on each side; the writing of the reverse columns continues on the top edge, and it may be assumed that the obverse columns continued on the lower edge of the tablet.<sup>32</sup> The distribution of the text on the reverse of the tablet is problematic. Günbattı originally identified the left column on the reverse as column III, and the right one as column IV, but it was demonstrated by Veenhof that column IV of the text is in fact on the left, and column III on the right side of the reverse of the tablet.<sup>33</sup> The tablet with the reverse of KEL G has column III on the left, and column IV on the right, with a colophon; the columns continue both on the upper and on the lower edge of the tablet.<sup>34</sup> This demonstrates that in Kanesh there was no uniform way of distributing columns on the reverse of the tablet.

<sup>29</sup> 1990: 182-183.

<sup>30</sup> Barjamovic *et al.* 2012: 95.

<sup>31</sup> The overview of evidence presented here has no ambition of being exhaustive, as a verification of distribution of columns is possible only when a copy or photograph of a tablet is available.

<sup>32</sup> Günbattı 2004: 254-264, 267-268.

<sup>33</sup> Veenhof 2008: 194.

<sup>34</sup> Barjamovic *et al.* 2012: 112-113.

Let us turn now to the examples from North Mesopotamia. At Tell Leilan, there were several multi-columned tablets found, all showing the same distribution of text, starting on the right of the reverse of the tablet and continuing leftwards.

The distribution of columns on single multi-columned tablet from Tell Bi'a follows the pattern observed at Tell Leilan, with column IV located on the right, and column VI on the left side of the reverse.

Tell Chagar Bazar yielded several multi-columned tablets containing rations lists. All of these were written during Samsi-Addu's rule and show the columns on the reverse are distributed from right to left.

At Tell Rimah few administrative tablets were written with two or more columns on one face of the tablet. In all the cases, the text on the reverse on the tablet starts in the column placed along the right edge of the tablet, and continues left.

A review of multi-columned tablets from Mari of the Zimri-Lim period shows that various formats were in use, especially for administrative documents, containing two up to five columns on each side of a tablet. However, the first column on the reverse is always placed along the right edge of the tablet; the remaining columns occupy the available space from right to left.

All the tablets coming from North Mesopotamia represent uniform manner of distributing of the text on the reverse of the tablet: writing starts in a column along the right edge of the tablet, and continues leftwards. The only exception to this rule is known from Anatolia (the KEL G tablet). It is thus reasonably certain that the fragment of text preserved on the reverse of A.1288 belongs to column IV of the tablet.

### **Distribution of the text on the reverse of tablet A.1288**

The first step is to summarize the distribution of the text on the obverse of the tablet (Table 2). The first column, according to the reconstruction presented above, contained originally 40 lines<sup>35</sup> covering entries for 27 years (eponyms REL 104 to 130, Šu-Suen to Aššur-rē'i). It has been hypothesized that the entry for the year of Tāb-Aššur (REL 131) was placed on the lower edge of the tablet, and that column II started with eponym Šu-Rama (REL 132). This column, according to the present reconstruction, should be 38 lines long – the lines in this column appear to be slightly higher than those in column I on the copy by Birot. The last eponym of column II should be Puzur-Ištar (REL 154), indicating a presence of 23 eponyms in 38 lines. It seems likely that the entry for year of Atanah (REL 155) was written on the continuation of column II on the lower edge of the tablet. This would mean that 51 years are accounted for on the obverse, spanning the period from the accession to the throne of Narām-Suen in REL 104, to year REL 155. This would be more than half of the period of 96 years covered by MEC according to the reconstruction of the sequence of eponyms by Barjamovic *et*

<sup>35</sup> Thus only five lines less than assumed by Birot on the basis of evaluation of the maximum height of the tablet (Birot 1985: 219), and five lines more than reconstructed by Durand (1990: 275).

*al.*,<sup>36</sup> and would leave less than 50 eponyms of the remaining years to be placed on the reverse of the tablet, and on the hypothetical second tablet of “Edition 2”. This disproportion is easy to explain: in the opening section of MEC the year entries were usually very short (one or, rarely, two lines long), while its final sections feature more substantial entries, up to six “long lines” long (cf. below).

It was already suggested that tablet A.1288 should contain the amount of text corresponding to that on the obverse of the tablet of “Edition 1”. At this point, it is necessary to proceed with the discussion of the distribution of the text on this tablet.

### **Distribution of the text in “Edition 1” and its relation to A.1288**

The text on A.1288 is parallel to “Edition 1” of MEC, which is preserved on tablet fragments S.24-1, S.24-2, S.24-3, A.1614a-b, M.7481, and M.11250. Some of these fragments could be joined, forming sections A and B belonging to the obverse of the tablet and E and G on the reverse. The remaining sections D, E, F, and G could be attributed to the reverse, though they could not be physically joined. I have hypothesized above that the division of text between the obverse and the reverse of “Edition 1” was reflected in “Edition 2”, since the content of the obverse of “Edition 1” was written on the first tablet of “Edition 2” (A.1288), and the content of its reverse – on the second tablet of “Edition 2”. It is, however, difficult to tell, to which tablet the hypothetical lines on the lower edge of the tablet of “Edition 1” would belong, if they existed. Still, the text on the reverse of “Edition 1” terminated before the end of the column, leaving an empty space used to place a colophon. Given that this space was large enough to accommodate about ten lines of text, it is reasonable to assume that the entries on the lower edge would belong to the text of the second tablet of “Edition 2”.

In two of the tablet fragments of “Edition 1” (S.24-3 and A.1614a) only the reverse face was preserved. For this reason, the analysis of the distribution of the text of “Edition 1” will begin with the reverse of the fragments, as more text could be attributed to it than to the obverse.

MEC fragment D (S.24-3) is eight lines long; according to a recent proposal by Barjamovic, Hertel and Larsen, it contains entries for five years covering eponyms REL 178 to 182, the last of which is Haya-malik.<sup>37</sup> Section E (S.24-1+S.24-2+A.1614b) consists of 25 partly preserved lines with entries for eponyms REL 183 to 193. Section G (M.7481+M.11250) contains the beginnings of six lines composing an entry for a single year with one broken eponym name, restored as [Aššur-]emū[qī] (REL 199), and a colophon comprising two lines of larger signs, occupying a free space in the lowermost part of the column. Section F (A.1614a) is six lines long and belongs most likely to the right side of the column, having final parts of lines preserved. For this reason it could not be related to any of the extant fragments, and the number of eponym entries on it could not be reconstructed. The overall number of the preserved beginnings of lines is 39, plus the area covered by the colophon (corresponding to ten lines

<sup>36</sup> Taking in account the present author’s remarks in the review of Barjamovic *et al.* 2012, two more eponyms may belong to this period, making it 98 years long (Koliński 2014).

<sup>37</sup> Barjamovic *et al.* 2012: 6-8.

of text<sup>38</sup>), resulting in 49 lines altogether. The estimated number of lines on the tablet may be calculated on the basis of the average height of the line (0.35 cm according to Birot), and the estimated height of the tablet (26 to 27 cm). As a result, there should be 78 to 81 lines in total, that is about 50% more than the number of preserved lines.<sup>39</sup>

A long gap between the eponyms Ahiyaya (REL 193) and Aššur-emūqī (REL 199) makes the reconstruction of the reverse difficult. The only observation about the length of the lacuna can be done on the basis of the estimated length of the tablet. With the expected total of 78 to 81 lines, and 16 lines preserved at the bottom of the tablet, 25 lines in the central part, and nine lines on fragment S.24-3 (in all 50 lines), this leaves about 30 lines missing that should be divided between the space on the top of the reverse, between fragments D and E,<sup>40</sup> and between fragments E and G of MEC (see Table 3).

This situation is far from being satisfactory, but it can be ameliorated by information on the distribution of entries on the obverse of the tablet of “Edition 1”. The partly preserved sequence of eponyms on the obverse is duplicated in other manuscripts of MEC and in KEL G, as summarized in Table 4.

| Eponym            | REL          | MEC   | Size of entry in “Edition 1” | Line nos. in copies of “Edition 1” | Expected number of lines in “Edition 2” |
|-------------------|--------------|-------|------------------------------|------------------------------------|---|
| Išim-Suen         | 171          | -     | -                            | -                                  | ?                                       |
| Adad-bāni         | 172          | -     | -                            | -                                  | ?                                       |
| Abī-šagiš         | 173          | -     | -                            | -                                  | ?                                       |
| Ṭāb-šilli-Aššur   | 174          | -     | -                            | -                                  | ?                                       |
| Iddin-Aššur       | 175          | -     | -                            | -                                  | ?                                       |
| Namiya            | 176          | -     | -                            | ?                                  | ?                                       |
| Ahu-šarri         | 177          | -     | 1?                           | <b>S.24-3 rev. 1'</b>              | 2                                       |
| Dadaya            | 178          | D.[1] | 1                            | 2'                                 | 2                                       |
| Ennam-Aššur       | 179          | D.2   | 1                            | 3'                                 | 2                                       |
| Atānum            | 180          | D.3   | 4                            | 4'-7'                              | 8                                       |
| Aššur-taklāku     | 181          | D.4   | 1                            | 8'                                 | 2                                       |
| Haya-malik        | 182          | D.5   | 1(?)                         | 9'                                 | 2??                                     |
| Šalim/Ennam-Aššur | 183/<br>183A | -     | [1?]                         | -                                  | [2?]                                    |

<sup>38</sup> Based on the average height of the line and the height of the section containing a colophon, see Veenhof 2003: 50.

<sup>39</sup> Veenhof (2003: 51) proposed 75 lines of writing.

<sup>40</sup> According to Barjamovic *et al.* (2012: 13-5), eponym E.1 follows immediately on eponym D.5. However, as eponym D.5 is Haya-malik (REL 182), during whose period of tenure Mari was captured by Samsī-Addu, one could expect that the relevant entry in MEC was composed of more than one line.



| Eponym                          | REL          | MEC  | Size of entry<br>in "Edition 1" | Line nos. in copies<br>of "Edition 1" | Expected number of<br>lines in "Edition 2" |
|---------------------------------|--------------|------|---------------------------------|---------------------------------------|--|
| Šalim/Ennam-Aššur <sup>41</sup> | 183/<br>183A | E.1  | 1                               | <b>S.24-1+</b> rev. 1'                | 2  |
| Suen-muballit                   | 184          | E.2  | 1                               | 2'                                    | 2  |
| Riš-Šamaš                       | 185          | E.3  | 1                               | 3'                                    | 2  |
| Ibni-Adad                       | 186          | E.4  | 1                               | 4'                                    | 2  |
| Aššur-imitti                    | 187          | E.5  | 4                               | 5'-8'                                 | 8  |
| Ili-elliti                      | 188          | E.6  | 1                               | 9'                                    | 2  |
| Rigmānum                        | 189          | E.7  | 1                               | 10'                                   | 2  |
| Ikūn-piya                       | 190          | E.8  | 5                               | 11'-15'                               | 5  |
| Asqudūm                         | 191          | E.9  | 1                               | 16'                                   | 2  |
| Aššur-malik                     | 192          | E.10 | 7                               | 17'-24'                               | 14   |
| Ahiyaya                         | 193          | E.11 | 2+                              | 25'-26'+?                             | 3+   |
| Idna-Aššur <sup>42</sup>        | 193A         | -    | -                               | -                                     | ?  |
| Awiliya                         | 194          | -    | -                               | -                                     | ?  |
| Nimar-Suen                      | 195          | -    | -                               | -                                     | ?  |
| Adad-bāni                       | 196          | -    | -                               | -                                     | ?  |
| Tab-šilli-Aššur                 | 197          | -    | -                               | -                                     | ?  |
| Ennam-Aššur                     | 198          | -    | -                               | -                                     | ?  |
| Aššur-emūqī                     | 199          | G.1  | 6                               | M.7481+, rev.<br>1'-6'                | 12   |
| Colophon                        | -            | G    | 10                              | 7'-8'                                 | ?  |

Table 3. Reconstruction of the content of the reverse of "Edition 1" tablet of MEC.

The top of the text of "Edition 1" is represented by two joining fragments, M.7481+M.11250. The left edge of the tablet is well preserved, so the entries for subsequent eponym names are easily readable, with the exception for eponyms A.2-A.5 whose names were placed in indented lines and did not survive (only in the case of A.2 the first sign is visible). They could be easily reconstructed on the basis of REL, as demonstrated above (Table 1). On the obverse of fragment M.7481+, 21 lines of text have been preserved, mentioning 20 eponyms (REL 103-122, see Table 4). After a long break follows another preserved fragment of the obverse composed of three joining smaller fragments, S.24-1+S.24-2+A.1614b. Fortunately, also in this part the left edge of the tablet has been preserved, allowing for the identification of a sequence of 10 eponyms (REL 151-160) in entries written in 20 lines. Four more names could be reconstructed in fragmentary lines 1' (Kataya), 2' (Šu-Suen), 3' (Abu-šalim) and 19' ([Aššur-]nišu) on the basis of KEL G and the duplicates of MEC. The lacuna between this fragment and M.7481, which has preserved upper edge of the tablet, covers 25 eponyms

<sup>41</sup> A correction to REL was proposed in Koliński 2014: 738.

<sup>42</sup> For an addition to REL, see Koliński 2014: 739-740.

(REL 123-148), and must be at least 25 lines long. However, many of the missing names are preserved either on the tablet of “Edition 2” of MEC (A.1288), or on duplicates of “Edition 1”. All those texts were written in lines about 5 cm long, thus the length of the entries needs to be converted into “long lines” typical for “Edition 1”; this will be done on the assumption that an entry in “Edition 2” which is either one or two lines long equals single line in “Edition 1”. The combined evidence of S.115-26, and A.1288, column II, allows to determine that entries for years REL 134-149 (Aššur-malik to Šu-Suen) should cover 18 lines in “Edition 1” (Table 4); this leaves 10 eponyms unaccounted for (REL 124-133). However, entries for the years of eponyms REL 124-128 (Aššur-imiti to Isaya) are preserved on A.1288, in column I. They are all quite short, and there is no doubt that they were rendered as single lines in “Edition 1” as well, thus accounting for six lines. The length of the entries for the remaining five eponyms is not evidenced. The study of the distribution of the text on the obverse of A.1288, in the lacuna between the end of column I and the beginning of column II, allows for a reconstruction of the text, shown in Table 2. The minimum number of missing lines is five but it seems possible that at least two years could have longer entries, raising the number of missing lines to seven. According to this reconstruction, it can be assumed with a reasonable accuracy that the lacuna between fragments M.7481+ and S.24-1+ should contain 29 lines, while the reconstructed number of lines from the beginning of the text till the last preserved line of S.24-1+ can be determined as 70 lines (Table 4). This figure, when compared with the estimated number of lines on the tablet (75 to 81) indicates clearly that five to ten lines are lost and that they had to be placed at the lower end of the column. However, one needs to remember that another fragment of the text, S.24-3 belongs to the reverse of the tablet of “Edition 1”. This fragment contains nine lines of writing with entries for five eponyms, and is separated by at least one line from the eponyms of MEC section E (Table 3). This strongly suggests that more than ten lines should be present on the reverse before the uppermost preserved line of S.24-3. The correspondence between the lines on the obverse and on the reverse of “Edition 1” is unclear, but it seems likely that the number of lines missing at the lower edge exceeds ten, and that the overall number of lines on the obverse is close to the highest estimate of 81 lines, or even higher. Since the last entry on fragment S.24-1+ refers to Aššur-nišu (REL 163), and since the number of missing eponyms could not be higher than 10, it can be expected with a reasonable accuracy that the last eponym on the obverse of the tablet was Abi-šagiš (REL 173), or one of his predecessors. The obverse of the tablet of “Edition 1” should thus cover as many as fifty one years, and the number of eponyms originally present on tablet A.1288 should be seventy or a few less.

| Eponym name             | REL | MEC   | “Edition 1”<br>reconstruction | “Edition 1”<br>lines          | “Edition 2”<br>reconstruction | “Edition 2”<br>lines           |
|-------------------------|-----|-------|-------------------------------|-------------------------------|-------------------------------|--------------------------------|
| Introductory<br>formula |     |       | 1                             | <b>M.7481+11250</b><br>1      | <b>A.1288 Col. I</b><br>[1-2] |                                |
| Šu-Suen                 | 104 | A.1   | 2                             | 2                             | [3]                           |                                |
| Aššur-malik             | 105 | [A.2] | 3                             | 3                             | [4]                           |                                |
| Aššur-imitti            | 106 | [A.3] | 4                             | 4                             | [5]                           |                                |
| Enna-Suen               | 107 | [A.4] | 5                             | 5                             | [6]                           |                                |
| Akutum                  | 108 | [A.5] | 6                             | 6                             | [7-8]                         |                                |
| Maši-ilī                | 109 | A.6   | 7                             | 7                             | 9                             | <b>A.1288<br/>Col. I 1’</b>    |
| Iddi(n)-ahum            | 110 | A.7   | 8                             | 8                             | 10                            | 2’                             |
| Samaya/Samanim          | 111 | A.8   | 9                             | 9                             | 11                            | 3’                             |
| Ilī-ālum/ennam          | 112 | A.9   | 10                            | 10                            | 12-13                         | 4’-5’                          |
| Ennam-Anum              | 113 | A.10  | 11                            | 11                            | 14                            | 6’                             |
| Ennam-Aššur             | 114 | A.11  | 12                            | 12                            | 15                            | 7’                             |
| Ennam-Suen              | 115 | A.12  | 13                            | 13                            | 16                            | 8’ <sup>4</sup>                |
| Hananarum               | 116 | A.13  | 14                            | 14                            | 17-18                         | 9-10’                          |
| Dadiya                  | 117 | A.14  | 15                            | 15                            | 19                            | 11’                            |
| Kapatiya                | 118 | A.15  | 16-17                         | 16-17                         | 20-22                         | 12’-14’                        |
| Išme-Aššur              | 119 | A.16  | 18                            | 18                            | 23-24                         | 15’-16’                        |
| Aššur-muttabbil         | 120 | A.17  | 19                            | 19                            | 25                            | 17’                            |
| Šu-Nirah                | 121 | A.18  | 20                            | 20                            | 26                            | 18’                            |
| Iddin-abum              | 122 | A.19  | 21                            | 21                            | 27                            | 19’                            |
| Ilī-dān                 | 123 | A.20  | 22                            | 22                            | 28                            | 20’                            |
| Aššur-imitti            | 124 | A.20  | [23]                          | -                             | 29                            | 21’                            |
| Buza/iya                | 125 | A.21  | [24]                          | -                             | 30                            | 22’                            |
| Dadiya                  | 126 | A.22  | [25]                          | -                             | 31-32                         | 23’-24’                        |
| Puzur-Ištar             | 127 | A.23  | [26]                          | -                             | 33-34                         | 25’-26’                        |
| Isaya                   | 128 |       | [27]                          | -                             | 35-[36]                       | 27’-(28’)                      |
| Abu-šalim               | 129 |       | [28]                          | -                             | [37-38]                       | -                              |
| Aššur-re’i              | 130 |       | [29]                          | -                             | [39-40/41]                    | -                              |
| Ṭāb-Aššur               | 131 |       | [30-31]                       | -                             | Lo.E. [1-3]                   | -                              |
| Šu-Rama                 | 132 |       | [32]                          | -                             | Col. II [1-2]                 | -                              |
| Suen-išmeanni           | 133 |       | [33]                          | -                             | [3-4]                         | -                              |
| Aššur-malik             | 134 | B.1   | 34                            | <b>S.115-26 Obv. 1’</b>       | [5]                           | -                              |
| Dān-Ea                  | 135 | B.2   | 35                            | 2’                            | [6]                           | -                              |
| Enna-Suen               | 136 | B.3   | 36                            | 3’                            | [7]                           | -                              |
| Aššur-balaṭi            | 137 | B.4   | 37                            | 4’                            | [8]                           | -                              |
| Enna(m)-Suen/<br>Aššur  | 138 | B.5   | 38                            | 5’                            | [9]                           | -                              |
| Itūr-Aššur              | 139 | B.6   | 39                            | 6’                            | [10]                          | -                              |
| Šu-Bēlum                | 140 | B.7   | 40-41                         | 7-8’                          | 11-12                         | <b>A.1288<br/>Col. II 1-2’</b> |
| Šarrum-Adad             | 141 | B.8   | 42-43                         | <b>Lo.E. 1-2<br/>Rev. 1-2</b> | 13-16                         | 3’-6’                          |

(table continues on next page)

| Eponym name      | REL | MEC    | "Edition 1"<br>reconstruction | "Edition 1"<br>lines | "Edition 2"<br>reconstruction | "Edition 2"<br>lines |
|------------------|-----|--------|-------------------------------|----------------------|-------------------------------|----------------------|
| Šu-Laban         | 142 | B.9    | 44                            | 3                    | 17                            | 7'                   |
| Aššur-imittī     | 143 | B.10   | 45-46                         | 4-6                  | 18-20                         | 8'-10'               |
| Dadaya I         | 144 | B.11   | 47                            | 7                    | 21                            | 11'                  |
| Dadaya II        | 145 | B.12   | 48                            | 8?                   | 22-23                         | 12'-13'              |
| Ah-šalim         | 146 | B.13   | [49]                          | -                    | 24                            | 14'                  |
| Ušur-ša-Ištar    | 147 | B.14   | [50]                          | -                    | 25                            | 15'                  |
| Kataya           | 148 | B.15   | [51]                          | <b>S.24-1+</b> [1']  | 26                            | 16'                  |
| Šu-Suen          | 149 | B.16   | 52                            | 2'                   | 27                            | 17'                  |
| Abu-šalim        | 150 | B.17   | 53                            | 3'                   | 28-29                         | 18'-19'              |
| Šudaya           | 151 | B.18   | 54                            | 4'                   | 30                            | 20'                  |
| Šu-Dādum         | 152 | B.19   | 55                            | 5'-6'                | 31                            | 21'                  |
| Aššur-tukultī    | 153 | B.20   | 56-57                         | 7'                   | 32-36                         | 22'-26'              |
| Puzur-Ištar      | 154 | B.21   | 58                            | 8'-9'                | [37'-38']                     | -                    |
| Atanah           | 155 | B.22   | 59-60                         | 10'-11'              | <b>Lo.E.</b> [1-3]            | -                    |
| Erišum           | 156 | B.23   | 61-62                         | 12'                  | <b>Col. III</b> [1-4]         | -                    |
| Aššur-enam       | 157 | B.24   | 63                            | 13'                  | [5?]                          | -                    |
| Inbi-Ištar       | 158 | B.25   | 64                            | 14'                  | [6-7?]                        | -                    |
| Aššur-bēl-malkim | 159 | B.26   | 65                            | 15'                  | [8?]                          | -                    |
| Bēlanum          | 160 | B.[27] | 66                            | 16'                  | [9-10?]                       | -                    |
| Sukkallum        | 161 | B.[28] | 67                            | 17'                  | [11-12?]                      | -                    |
| Amur-Aššur       | 162 | B.[29] | 68                            | 18'-19'              | [13-14?]                      | -                    |
| Aššur-nišu       | 163 | B.[30] | 69-70                         |                      | [15-18?]                      | -                    |
| Munawwirum       | 164 |        | [71?]                         | -                    | [?]                           | -                    |
| Idnaya           | 165 |        | [?]                           | -                    | [?]                           | -                    |

Table 4. Reconstruction of the distribution of year entries on the obverse of "Edition 1" of MEC (various copies) and on "Edition 2" (A.1288).

How can this information aid in the reconstruction of the distribution of the text on the reverse of A.1288? It may be assumed that the length of the lacuna between fragment S.24-1+ and M.7481+ of the reverse of "Edition 1" more or less corresponds to the already determined length of the lacuna between these two fragments on the obverse of the same edition. Therefore, the result is a figure of about 30 missing lines (allowing for a margin of a few lines that arises from the impossibility to verify the relation between the beginning/end of preserved text on the obverse and the text on the reverse). At least ten lines are missing before the first preserved line of S.24-1+ (these lines will be covered by nine lines preserved on S.24-3, but as on this tablet the writing is preserved only on the reverse, it could not be included in the present count). However, now it may seem that this estimation is too low, because there is reason to expect one eponym between S.24-3 and S.24-1+. <sup>43</sup> Moreover, fragment S.24-3, has no upper edge preserved, meaning that at least one line should be added here. This will not

<sup>43</sup> Šalim-Aššur (REL 183) or Ennam-Aššur (REL 183A), see Koliński 2014: 739-740.

necessarily bring the total number of lines on the tablet above 81, because, as mentioned above, the 29-line-long lacuna observed on the obverse could correspond to a smaller number of lines missing on the reverse.

According to Barjamovic, Hertel and Larsen the first name of the eponym which should be reconstructed on S.24-3 is Dadaya (REL 178).<sup>44</sup> Moreover, it was determined above that the last eponym on the obverse should be Abī-šagiš (REL 173), or one of his predecessors. Therefore, at least four eponyms featuring on the eponym list between Abī-šagiš (REL 173) and Dadaya (REL 178) should find a place on the tablet. Assuming one line entries, two or three names could be placed on the lower edge of the tablet, and one or two before the first line of S.24-3. Consequently, the first eponym on the reverse would most likely be either Namīya (REL 176) or Ahu-šarri (REL 177).

There is, however, one more factor which needs to be taken into account. Between the year of Aššur-nīšu (REL 163) and the year of Dadaya (REL 178), there should be placed two important historical events, the highlights of Samsī-Addu's career, namely the conquests of Ekallātum and of Assur. If the entries for these years were longer than one line, what seems very likely, the lacuna between the fragment S.24-1+ and the fragment S.24-3 should be at least two lines longer, and these events should be accounted for on the very bottom of the obverse of the tablet. At the same time, there arises a need for one additional line on the tablet, increasing the length of the text by one line both on the obverse and the reverse. This addition will "push" either Namīya, or his predecessor, into a hypothetical position on the top of the reverse.

### **Distribution of the text on the reverse of tablet A.1288: a hypothesis**

The reconstruction of the distribution of the text on the obverse of A.1288 presented above (Table 2) suggests that the first eponym in column III should be Erišum (REL 156) and the last eponym in column IV is either Abī-šagiš (REL 173) or one of his predecessors. Hence, there are 18 year entries to be distributed over columns III and IV of tablet A.1288. The beginning of column III is duplicated in fragment S.24-1+ of "Edition 1", therefore it may be safely assumed that entries for eight eponyms from Erišum (REL 156) to Amur-Aššur (REL 162) will account for 14 lines out of 40 lines expected in column III (shorter lines for Aššur-ennam and for Aššur-bēl-malkim were counted as one line entry in "Edition 2"), see Table 4. As it was previously mentioned, the entries for years REL 163-173 in "Edition 1" should be each one line long, with a possible exception of two years. In consequence, they should account for at least 24 lines in "Edition 2". This means that most of the eponyms that were attributed to tablet 1 of "Edition 2" on the basis of the reconstructed division between the obverse and the reverse of "Edition 1", fit in column III of A.1288, filling at least 38 lines of text, that is the entire column. If so, there is no text which could be allotted to column IV. This is impossible, demonstrating that one of the assumptions on which the proposed distribution has been based is wrong. Let us review both these assumptions.

<sup>44</sup> Barjamovic *et al.* 2012: 8.

| <b>A.1288<br/>Col. IV</b> | Eponym name      | REL |
|---------------------------|------------------|-----|
| [1]                       | [Puzur-Nirah]?   | 167 |
| [2]                       | "                |     |
| [3]                       | "                |     |
| [4]                       | "                |     |
| [5]                       | "                |     |
| [6]                       | "                |     |
| [7]                       | [Abiya]?         | 168 |
| [8]                       | "                |     |
| [9]                       | "                |     |
| [10]                      | "                |     |
| [11]                      | "                |     |
| [12]                      | "                |     |
| [13]                      | [Edinum]         | 169 |
| [14]                      | "                |     |
| [15]                      | "                |     |
| [16]                      | "                |     |
| [17]                      | "                |     |
| [18]                      | "                |     |
| [19]                      | [Aššur-taklāku]? | 170 |
| [20]                      | "                |     |
| [21]                      | "                |     |
| [22]                      | "                |     |
| [23]                      | "                |     |
| [24]                      | "                |     |
| [25]                      | [Išim-Suen]?     | 171 |
| [26]                      | "                |     |
| [27]                      | "                |     |
| [28]                      | "                |     |
| [29]                      | "                |     |
| [30]                      | "                |     |
| [31]                      | [Adad-bāni]?     | 172 |
| [32]                      | "                |     |
| [33]                      | "                |     |
| [34]                      | "                |     |
| [35]                      | "                |     |
| [36]                      | "                |     |
| [37]                      | [Abi-šagiš]?     | 173 |
| [38]                      | "                |     |
| U.E. [1]                  | "                |     |
| [2]                       | "                |     |
| [3]?                      | "                |     |

| <b>A.1288<br/>Col. III</b> | Eponym name      | REL |
|----------------------------|------------------|-----|
| [1]                        | Erišum           | 156 |
| [2]                        | "                |     |
| [3]                        | "                |     |
| [4]                        | "                |     |
| [5]                        | Aššur-enam       | 157 |
| [6]                        | Inbi-Ištar       | 158 |
| [7]                        | "                |     |
| [8]                        | Aššur-bēl-malkim | 159 |
| [9]                        | Bē[lānum]        | 160 |
| [10]                       | "                |     |
| [11]                       | S[ukkallum]      | 161 |
| [12]                       | "                |     |
| [13]                       | [Amur-Aššur]     | 162 |
| [14]                       | "                |     |
| [15]                       | "                |     |
| [16]                       | "                |     |
| [17]                       | "                |     |
| [18]                       | "                |     |
| [19]                       | [Aššur-nišu]?    | 163 |
| [20]                       | "                |     |
| [21]                       | "                |     |
| [22]                       | "                |     |
| [23]                       | "                |     |
| [24]                       | "                |     |
| [25]                       | [Munawwirum]?    | 164 |
| [26]                       | "                |     |
| [27]                       | "                |     |
| [28]                       | "                |     |
| [29]                       | "                |     |
| [30]                       | "                |     |
| [31]                       | [Idnaya]?        | 165 |
| [32]                       | "                |     |
| [33]                       | "                |     |
| [34]                       | "                |     |
| [35]                       | "                |     |
| [36]                       | "                |     |
| [37]                       | [Dadaya]?        | 166 |
| [38]                       | "                |     |
| U.E. [1]                   | "                |     |
| [2]                        | "                |     |
| [3]?                       | "                |     |

Fig. 5. Tentative placement of entries for years REL 156-173 on the reverse of tablet A.1288.



The first assumption was that the division between the obverse and reverse of “Edition 1” will be reflected by the division between tablet 1 and 2 of “Edition 2”. This does not need to be true, but seems to be quite likely, although difficult to prove. The second assumption stated that entries for years REL 164-173 in “Edition 1” will cover only one line each, with two exceptions: of the year when Ekallātum was taken, and the year when Assur was captured. One may expect that achievements of such a scale as the victory over two extremely important cities would be treated more extensively. However, the same could be said about the following years, during which Samsī-Addu successfully conquered large parts of North Mesopotamia and transferred his capital to Šubat-Enlil. There is enough room to extend the entries for those years, as they would fall in the gap between the end of the text preserved on the obverse, and the beginning of the text preserved on the reverse of MEC “Edition 1”. It has already been noted that extra lines can be easily added here, because the figure of 81 lines for one side of the tablet is based on an educated guess about the original height of the tablet. One centimeter of increase in height would allow to accommodate six more lines of text: three on the obverse and on three on the reverse. Moreover, as pointed out earlier, such substantive entries are supposed to fill the lower part of column III and column IV of the assumed first tablet of “Edition 2”. Consequently, the second assumption, concerning the length of the entries for years REL 164-173 needs to be modified in favour of longer entries.

This change would be relevant to the content of column III only to a limited extent, because specific information about the length of the entries for eponyms REL 156-162 is preserved on one of the duplicates (cf. above), accounting for 14 lines of text located at the top of the column. This would leave a space of 22 lines in column III, plus two or three lines on the upper bottom of the tablet, and 38 lines in column IV, plus two or three more lines on the edge, that is 64-66 lines for entries of years REL 163 to 173. With 11 eponyms, each entry should have six lines on average, thus typically six or seven lines (what would account for three or four-line-long entries on the large tablet of “Edition 1”). In consequence, the distribution of the text in columns III and IV of tablet A.1288 might be as shown in Table 5.

#### THE POSITION OF MEC FRAGMENT C

The reconstruction of the distribution of the year entries on the reverse of tablet A.1288 presented in Table 5 can be used to clarify whether the only preserved fragment of text in the left column of the reverse belongs to column III or to column IV of that tablet.

If it is assumed that there are four lines missing above this fragment of A.1288, and that it belongs to column III, then nine partly preserved lines should refer to the years of Aššur-ennam, Inbi-Ištar, and Aššur-bēl-malkim, and possibly overlap with a year before, and a year after. Entries for these years are partly preserved on tablet S.24-1+. However, signs visible on the reverse of A.1288 could not be satisfactorily matched either with fragmentarily preserved entries of S.24-1+, or with expected names of eponyms identified on the analyzed fragment. Thus, by way of elimination, there is only one possibility left; the left side area on the reverse of A.1288 contains column IV of the text, exactly as suggested by Birot in his publication of MEC.

Given that the text fragment preserved on the reverse of A.1288 belongs to column IV, the entries, according to the reconstruction presented in Table 5, should cover terminal line(s) of the formula for the years of Puzur-Nirah and of Abiya, that is the supposed year of the conquest of Assur and the year after that. The preserved lines of text on the reverse of A.1288 contain names of the cities Haburātum, Šerwunum, and Rapiqum, and of two fortresses Dūr-<sup>45</sup>x, and Dūr-Samsī-Addu. Two more names were reconstructed by Durand, namely Mardaman, and a term *dadmi*, referring to Yamhad.<sup>45</sup> Three of those names, Haburātum, Šerwunum, and Mardaman are located north of Nineveh, in the vicinity of the Tigris, while Rapiqum is the well-known city on the Euphrates. This would place military activities of this year(s) along the Tigris, both in the north and in the south. In the light of the identification of the year of Puzur-Nirah as the year of the conquest of Assur, the geographic setting of the event of the following year seems realistic and understandable, though the mention of Yamhad at such an early date is surprising. Nonetheless, there remains one more issue regarding the placement of fragment C, as the name of eponym Abiya, who succeeded Puzur-Nirah, could not be identified in any of the extant lines on the reverse of A.1288.

In this situation one more factor needs to be taken into consideration before a conclusion on the placement of MEC fragment C can be reached. The sequence of eponyms for the early years of Samsī-Addu is fully preserved in REL.<sup>46</sup> Could any of these names be identified in the preserved section of A.1288, column IV? After reviewing the names of likely candidates, it is tempting to reconstruct [*i-na E-d*]*i-nim* in column IV, line 3' of A.1288, as such reconstruction is possible in the light of extant traces of a partly preserved sign in front of the sign NIM. However, this identification does not correspond to the reconstructed position of the entry for Edinum, which was placed too low in column IV in the reconstruction presented above (cf. Table 5). Still, the proposed placement of entries in the lower part of column III is tentative, and it could be that the entry for the year of Puzur-Nirah was the last entry in column III. This change would place Abiya at the top of column IV, and the entry for the year of Edinum should then start in line 6 or 7 of that column. Consequently, the first, fragmentarily preserved line on the reverse of A.1288 would refer to the final line of the entry for the year of Abiya, five or six lines long.<sup>47</sup> As the name of Aššur-taklāku, the eponym that followed Edinum according to REL, could not be identified among the signs extant on the preserved fragment of the reverse of A.1288, it may be assumed that all the remaining lines of this fragment refer to the year of Edinum, and that the entry for this year was at least nine lines long. This would be the first entry in MEC of such an extensive size, at least among the preserved entries. The changes resulting from the reconstruction of the reverse of A.1288 are illustrated in Table 6.

<sup>45</sup> Durand 1990: 274-275.

<sup>46</sup> M. Liebig's view (2012: 57) that five names have been omitted in KEL G, is unlikely.

<sup>47</sup> Given the earlier assessment of the number of missing lines at the bottom of the obverse of A.1288, the number of missing lines on the reverse could be established as four or five, see Tables 1-2.

| <b>A.1288<br/>Col. IV</b> | Eponym name      | REL | <b>A.1288<br/>Col. III</b> | Eponym name      | REL |
|---------------------------|------------------|-----|----------------------------|------------------|-----|
| [1]                       | [Abiya]?         | 168 | [1]                        | Erišum           | 156 |
| [2]                       | "                |     | [2]                        | "                |     |
| [3]                       | "                |     | [3]                        | "                |     |
| [4]=1'                    | "                |     | [4]                        | "                |     |
| [5]=2'                    | "                |     | [5]                        | Aššur-ennam      | 157 |
| [6]=3'                    | Edinum?          | 169 | [6]                        | Inbi-Ištar       | 158 |
| [7]=4'                    | "                |     | [7]                        | "                |     |
| [8]=5'                    | "                |     | [8]                        | Aššur-bēl-malkim | 159 |
| [9]=6'                    | "                |     | [9]                        | Bē[lānum]        | 160 |
| [10]=7'                   | "                |     | [10]                       | "                |     |
| [11]=8'                   | "                |     | [11]                       | S[ukallum]       | 161 |
| [12]=9'                   | "                |     | [12]                       | "                |     |
| [13]=10'                  | "                |     | [13]                       | [Amur-Aššur]     | 162 |
| [14]=11'                  | [Aššur-taklāku]? | 170 | [14]                       | "                |     |
| [15]                      | "                |     | [15]                       | "                |     |
| [16]                      | "                |     | [16]                       | "                |     |
| [17]                      | "                |     | [17]                       | [Aššur-nišu]?    | 163 |
| [18]                      | "                |     | [18]                       | "                |     |
| [19]                      | "                |     | [19]                       | "                |     |
| [20]                      | "                |     | [20]                       | "                |     |
| [21]                      | [Išim-Suen]?     | 171 | [21]                       | [Munawwirum]?    | 164 |
| [22]                      | "                |     | [22]                       | "                |     |
| [23]                      | "                |     | [23]                       | "                |     |
| [24]                      | "                |     | [24]                       | "                |     |
| [25]                      | "                |     | [25]                       | "                |     |
| [26]                      | "                |     | [26]                       | "                |     |
| [27]                      | [Adad-bāni]?     | 172 | [27]                       | [Idnaya]?        | 165 |
| [28]                      | "                |     | [28]                       | "                |     |
| [29]                      | "                |     | [29]                       | "                |     |
| [30]                      | "                |     | [30]                       | "                |     |
| [31]                      | "                |     | [31]                       | [Dadaya]?        | 166 |
| [32]                      | "                |     | [32]                       | "                |     |
| [33]                      | "                |     | [33]                       | "                |     |
| [34]                      | [Abi-šagiš]?     | 173 | [34]                       | "                |     |
| [35]                      | "                |     | [35]                       | "                |     |
| [36]                      | "                |     | [36]                       | "                |     |
| [37]                      | "                |     | [37]                       | [Puzur-Nirah]?   | 167 |
| [38]                      | "                |     | [38]                       | "                |     |
| U.E. [1]                  | "                |     | U.E. [1]                   | "                |     |
| [2]                       | "                |     | [2]                        | "                |     |
| [3]?                      | "                |     | [3]?                       | "                |     |

Table 6. Corrected distribution of entries for years REL 156-173 on the reverse of tablet A.1288 showing the reconstructed position of MEC fragment C.

This improved reconstruction yields valuable results, especially because of the reference to the fortresses Dūr-<sup>d</sup>[Addu] and Dūr-Samsī-Addu. A study of tablets ARM I 43 and M.6669 by Durand has demonstrated that they both should be located in the west, in the vicinity of Zalmaqum and Tuttul, in the zone of influence of Yamhad.<sup>48</sup> This would mean that Samsī-Addu was able to reach in his campaigns beyond Balikh already in the second year after the capture of Assur. In fact, the conquest of North Mesopotamia could have started earlier, in the years following the capture of Ekallātum. As it is generally assumed that this city was located upstream from Assur,<sup>49</sup> Samsī-Addu could have easily led his campaigns in the north and west in the years preceding his conquest of Assur.

If my proposition is correct, fragment C of MEC can be placed in the sequence of eponyms, falling in the very early period of Samsī-Addu's kingship in Assur.<sup>50</sup> The preserved fragment describes most likely the military campaigns held in the north, in the south and in the west in the second year of his rule in the city, that is in the year of Edinum (REL 169). The fragment thus throws light onto a poorly known part of the history of North Mesopotamia, from the conquest of Assur till the capture of Mari in the year of Haya-malik (REL 182).

#### A TENTATIVE RECONSTRUCTION OF THE SECOND TABLET OF "EDITION 2"

As a consequence of the reconstruction of the content of the first tablet of "Edition 2" of MEC, it is possible to propose a hypothetical reconstruction of the distribution of the text on the second tablet of this edition in Table 7.

| Col. I     | REL | Col. II  | REL  | Col. III   | REL  | Col. IV                  | REL           |
|------------|-----|----------|------|------------|------|--------------------------|---------------|
| [1-6]      | 174 | 1-6      | 181  | [1-4]      | 187  | <sup>4?</sup><br>[1-4]   | 194           |
| [7-12]     | 175 | 7-12     | 182  | [5-6]      | 188  | <sup>4?</sup><br>[5-9]   | 195           |
| [13-18]    | 176 | 29-30    | 183  | 7-8        | 189  | <sup>4?</sup><br>[10-14] | 196           |
| [19-24]    | 177 | 31-32    | 183A | 9-18       | 190  | <sup>4?</sup><br>[15-18] | 197           |
| [25-30]    | 178 | 33-34    | 184  | 19-20      | 191  | <sup>4?</sup><br>[19-23] | 198           |
| [31-36]    | 179 | 35-36    | 185  | 21-34      | 192  | 24-36                    | 199           |
| [37-38]    | 180 | 37-38    | 186  | 35-38?     | 193  | 37-38                    | colo-<br>phon |
| [L.E. 1-3] |     | U.E. 1-3 | 187  | [L.E. 1-3] | 193A | U.E. 1-3                 |               |

Table 7. Proposed reconstruction of the distribution of the text on the hypothetical second tablet of "Edition 2" of MEC.

<sup>48</sup> Durand 1990: 271-275.

<sup>49</sup> Ziegler 2002: 223-227.

<sup>50</sup> Whiting proposed this approximate placement of fragment C already in 1990, however, he was unable to present any evidence in its favour (Whiting 1990: 184).

## THE EDITORIAL HISTORY OF MEC

In addition to the reconstruction of the layout of the text of MEC, other general observations can be made on the subject of the MEC tablets from Mari.

A review of formal features of the original tablets suggests very strongly that “Edition 1” was an “official” copy of the text. It was written on a single large tablet (reconstructed dimensions: about 28-29 x 10.5 cm) covered with small, but carefully written signs, with rulings and indentations in the text graphically marking the position of subsequent entries. The text was very well planned; it ended about 35 cm above the end of the reverse column, allowing to use the remaining space for the colophon.

“Edition 2” has an entirely different appearance. It was written on a smaller tablet (reconstructed dimensions: 18 x 10.8 cm) divided into two columns on each side. The writing is more careless, as evidenced, for instance, by the variation in the height of lines in columns I and II on the obverse, by the omission of indentations present in “Edition 1”, as well as by the fact that, in one case, (lines 2’-3’ on the reverse) signs placed in overimposed lines seem to be merging. Moreover, as already noted by Veenhof,<sup>51</sup> this document occasionally omits the preposition *ina* that introduces each new year entry in the chronicle. All these remarks strongly suggest that this tablet constituted an informal copy of “Edition 1”, possibly a school exercise. If so, one may wonder whether the second tablet of “Edition 2” ever existed.

The three remaining tablet fragments of MEC were not qualified either as “Edition 1”, or as “Edition 2” in Veenhof’s study (2003). They are represented by S.115-26, a lower edge fragment of a narrow tablet with a single column of text (5.6 cm wide), as well as by M.8566 and M.5911 (dimensions are not given). Judging from the published copy and a photograph, M.8566 is a relatively narrow tablet containing a single column of text both on the obverse and on the reverse; only the left edge is preserved, but the curve of the face of the tablet on its lower edge, as visible on the photograph, suggests very strongly that it could not hold a second column of text.<sup>52</sup> Similar information is not available for M.5911, but as it duplicates the text of A.1288, column I in the content, and in the outline of the text, it may very well be a fragment of another tablet of “Edition 2”. Therefore, it is all the more probable that there was yet another rendering of the text of MEC, written on small tablets, containing a single column of text both on the obverse and the reverse of the tablet. Given the width of tablet S.115-26, which corresponds to that of a single column of “Edition 2”, and the similarities between the renderings of the text on other listed tablets and the layout of “Edition 2”, one may expect that there was yet another version of MEC written on four tablets, with about 40 lines of text on each face. This assumption may be verified by comparing the distribution of the text on the obverse of A.1288, and on these two fragments which have the lower edge of the tablet preserved. Tablet S.115-26 lists eponyms from Aššur-malik to Šu-Bēlum (REL 134-140) on the lower part of the obverse, and the year of eponym of Šarrum-Adad (REL 141) is placed partly on the lower edge of the tablet, and partly on the top of the reverse. Entries for Šu-Laban, Aššur-imiti, Dadaya, and Dadaya II (REL 142-145) follow before the break of the tablet (Table 2). Nearly all eponym

<sup>51</sup> Veenhof 2003: 50.

<sup>52</sup> Birot 1985: 240, 242.

names preserved on the obverse of S.115-26 were not preserved on A.1288, but Šu-Bēlum, and the subsequent ones appear on A.1288 in column II, lines 1'-13', that is in the mid-upper part of the column. This demonstrates that there was a serious difference in the layout of the text on A.1288, and on S.115-26. The column of text on the second tablet was considerably longer than on A.1288, and most likely contained 50 lines.

Tablet M.8566 is parallel to column II of A.1288. The lower part of the tablet contains the entries for eponyms from Dadaya to Šu-Daya (REL 144-151), while the entries for eponyms Šu-Dadum, and Aššur-tukultī (REL 152-153) are written on the lower edge, and the first line of the entry for Puzur-Ištar (REL 154) is the only preserved fragment of text on the reverse (Table 2). Most of those names overlap with names in the lower part of column II of A.1288. Moreover, the penultimate eponym name preserved on S.115-26 is the first one preserved on M.8566, demonstrating that these two fragments belong to different tablets, and to different renderings of the text. As Puzur-Ištar is most likely the last eponym present in column II of A.1288, it is tempting to assume that M.8566 was a quite large, but narrow tablet that accommodated columns I and II of "Edition 2" on the obverse, and probably columns III and IV on the reverse. Consequently, one may expect that it contained about 80 lines of text on one side, and that the entire tablet held the amount of text corresponding approximately to the amount of text on the obverse of "Edition 1". The size and the shape of M.5911 are impossible to identify. The fragment belongs to the left part of a column composed of short lines, and duplicates the middle part of column I of A.1288, from the entry for eponym Ilī-ālum/ennam (REL 112) to Kapatīya (REL 118). It is impossible to tell whether M.5911 is a fragment of a tablet containing a single column on a side or more. The reverse of the fragment is not preserved.

From a formal point of view, the three tablets just described share more features with "Edition 1" than with "Edition 2". Although the text is not so carefully outlined as in "Edition 1", the subsequent lines of multi-lined entries are carefully indented, and all the lines of text are provided with rulings. In this situation it seems justified to consider "Edition 1" as the formal "mother" copy of MEC, and the remaining four documents as four different copies of this text, written on smaller tablets of various sizes and formats. Of those, A.1288 could almost certainly be identified as an exercise copy (that is a school tablet), as it is the least carefully written and some signs present in "Edition 1" are omitted. It is very difficult to judge what the nature of the remaining three copies of the text was. They seem to duplicate "Edition 1" as well, but in an outline similar to that of "Edition 2" (that is in short lines), and are more carefully written than A.1288. For this reason, it is unclear whether they were exercise copies as well. Because of numerous similarities to "Edition 1" in the layout of the text, I would consider them additional copies of the text, made in order to avoid handling the large and cumbersome tablet of "Edition 1" on such occasions as supposed recitation of the text during rituals to the ancestors (this role of MEC was postulated in Durand and Guichard 1997: 43).

Durand, Guichard, Charpin and Ziegler argued that tablets containing MEC were looted in Šubat-Enlil and transported to Mari with other booty when the city was captured by Zimri-Līm.<sup>53</sup> However, there is evidence that the city was taken by the armies of Bunu-Eštar,

<sup>53</sup> Durand and Guichard 1997: 43, n. 145; Charpin and Ziegler 2003: 168.



king of Kurda and Hadnu-rabi, king of Qaṭṭara.<sup>54</sup> Moreover, it is difficult to understand why this text would be so important to Zimri-Līm that it would be taken to Mari; neither Durand nor Charpin pointed to any other tablet looted on this occasion. The other possibility is that the text was written in Mari during the period of independent rule of Yasmah-Addu, but this would mean that he was still present in the city at the end of the year of Aššur-emūqī (REL 199), the last year entry of MEC. This would be contradictory to the historical reconstruction according to which he fled Mari only a few months after the death of his father.<sup>55</sup>

Three of the fragments of MEC, all belonging to the “Edition 1” tablet, were found in Salle 24, accommodating, among others, a dossier of the chief merchant Iddiyātum.<sup>56</sup> Another fragment, belonging to one of the less formal copies of “Edition 2” was found in Salle 115, among documents selected and deposited there by Babylonian scribes some time after the capture of the Royal Palace in Mari.<sup>57</sup> Thus, the distribution of the discovered fragments of MEC does not help to reconstruct the function of its manuscripts.

Although it is impossible to determine whether “Edition 1” was written in Mari, or in Šubat-Enlil, or elsewhere, it seems probable that the tablets containing less formal copies of the Mari Eponym Chronicle were written locally, either for ritualistic or exercise purposes, or both.

#### BIBLIOGRAPHY

- Biro, M., 1985 — Les chroniques ‘assyriennes’ de Mari, *M.A.R.I.* 4, 219-242.
- Barjamovic, G., T. Hertel, and M.T. Larsen, 2012 — Ups and Downs at Kanesh. Chronology, History and Society in the Old Assyrian Period. OAAS 5, PIHANS 120, Leiden.
- Charpin, D., 1995 — La fin des archives dans le palais de Mari, *RA* 89, 29-40.
- Charpin, D., 2004 — Histoire politique du Proche-Orient amorrite (2002-1595), in: D. Charpin, D. Edzard, and M. Stol, *Mesopotamien. Die altbabylonische Zeit, Annäherungen* Bd. 4. OBO 160/4, Fribourg – Göttingen; 25-480.
- Charpin, D., and N. Ziegler, 2003 — Mari et le Proche-Orient à l’époque amorrite. *Essai d’histoire politique*. *Florilegium marianum* V, Paris.
- Dossin, G., 1939 — Les archives économiques du Palais de Mari, *Syria* 20, 97-113.
- Durand, J.-M., 1990 — Documents pour l’histoire du royaume de Haute Mésopotamie II, *M.A.R.I.* 6, 271-301.
- Durand, J.-M., and M. Guichard, 1997 — Les rituels de Mari, in: D. Charpin and J.-M. Durand (eds.), *Florilegium marianum* III. *Receuil d’études à la mémoire de Marie-Thérèse Barrelet*. *Mémoires de N.A.B.U.* 4, Paris; 19-78.
- Eidem, J., 2011 — The Royal Archives from Tell Leilan. *Old Babylonian Letters and Treaties from the Lower Town Palace East*. PIHANS 117, Leiden.
- Glassner, J.-J., 2004 — *Mesopotamian Chronicles*. Atlanta.
- Grayson, A.K., 1987 — *Assyrian Rulers of the Third and Second Millennia BC (to 1115 BC)*. *Royal Inscriptions of Mesopotamia: Assyrian Periods*, vol. 1, Toronto.

<sup>54</sup> Charpin and Ziegler 2003: 200. Bunu-Eštar offered a part of the loot from Šubat-Enlil to Zimri-Līm, cf. OBTR 5.

<sup>55</sup> Charpin and Durand 1985: 304-7; Charpin and Ziegler 2003: 161-8.

<sup>56</sup> Charpin 1995: 39. Cf. discussion on the distribution of the archives in the palace of Mari in Margueron 1986.

<sup>57</sup> Charpin 1995. Fragment A.1614b, joining S.24-1+, was most probably found in the same Salle 24. Information on the find-spots of other fragments is not available to me.

- Guichard, M., 2014 — L'épopée de Zimri-Lîm. Florilegium marianum XIV, Paris.
- Günbattı, C., 2008 — An Eponym List (KEL G) from Kültepe, *AoF* 35, 103-132.
- Koliński, R., 2014 — review of: G. Barjamovic, T. Hertel, and M.T. Larsen, Ups and Downs at Kanesh. Chronology, History and Society in the Old Assyrian Period. OOAS 5, PIHANS 120, Istanbul 2012. In: *BiOr* 70 5/6, 736-742.
- Kryszat, G., 2004 — Zur Chronologie der Kaufmannsarchive aus der Schicht 2 des *Kārum Kaneš*. OAAS 2, PIHANS 99, Leiden.
- Liebig, M., 2011 — Die Eponymenliste KEL G und Distanzangaben assyrischer Bauinschriften, *N.A.B.U.* 2012, 57-58, no. 45.
- Margueron, J.-Cl., 1986 — Quelques remarques concernant les archives retrouvées dans le palais de Mari. In: K.R. Veenhof (ed.), Cuneiform Archives and Libraries. Papers read at 30<sup>e</sup> Rencontre Assyriologique Internationale, Leiden, 4-8 July 1983, PIHANS 57, Leiden, 141-151.
- Pruzsinszky, R., 2009 — Mesopotamian Chronology of the 2<sup>nd</sup> Millennium B.C.: An Introduction to the Textual Evidence and Related Chronological Issues, Vienna.
- Veenhof, K.R., 2000 — Old Assyrian Chronology, in: M. Tanret (ed.), Just in Time. Proceedings of the International Colloquium on Ancient Near Eastern Chronology (2<sup>nd</sup> Millennium BC). Ghent 7-9 July 2000 (= *Akkadica* 119-120), Bruxelles, 137-180.
- Veenhof, K.R., 2003 — The Old Assyrian List of Year Eponyms from *kārum* Kanish and its Chronological Implications, Ankara.
- Veenhof, K.R., 2007 — The Old Assyrian List of Year Eponyms. Corrections, Additions and Chronology, *N.A.B.U.* 2007, 58-62, no. 49.
- Veenhof, K.R., 2008 — The Old Assyrian Period, in: K.R. Veenhof, J. Eidem, Mesopotamia. The Old Assyrian Period. Annäherungen 5. OBO 160/5, Fribourg – Göttingen; 13-264.
- Vincente, C., 1995 — The Tell Leilān Recension of the Sumerian King List, *Zeitschrift für Assyriologie* 85, 234-270.
- Whiting, R.M., 1990 — Tell Leilan/Šubat-Enlil. Chronological Problems and Perspectives. In: S. Eichler, M. Wäfler, and D. Warburton (eds.), Tall al-Hamidiya 2. OBO SA 6, Fribourg – Göttingen; 167-218.
- Yuhong, W., 1994 — A Political History of Eshnunna, Mari and Assyria During the Early Old Babylonian Period (from the End of Ur III to the Death of Samsi-Adad), Changchun.
- Ziegler, N., 2002 — Le royaume d'Ekallātum et son horizon géopolitique, in: D. Charpin and J.-M. Durand (eds.), Recueil d'études à la mémoire d'André Parrot. Florilegium marianum VI, Paris; 211-274.

## THE 2013 AND 2014 EXCAVATION SEASONS AT ÇADIR HÖYÜK ON THE ANATOLIAN NORTH CENTRAL PLATEAU

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### Abstract

*Çadır Höyük, on the north central Anatolian plateau, is one of the few multi-period sites in the region. The site has demonstrated occupation spanning six millennia (ca. 5200 BCE to the late 11<sup>th</sup> century CE). The 2013 and 2014 seasons, reported on here, have continued to target the four main periods investigated over the last decade: the Late Chalcolithic/Early Bronze Age (ca. 3600-2900 BCE), the Middle Bronze/Hittite period (ca. 1800-1200 BCE), the Middle and Early Iron Age (ca. 1200-800 BCE), and the Middle Byzantine (6<sup>th</sup>-11<sup>th</sup> c. CE). In the Late Chalcolithic trenches we have, after well over a decade, finally retrieved the additional extant walls of the Omphalos Building first exposed in 2001. We also recovered unusual apsidal structures and revealed a non-domestic structure that may have been used for specialized purposes. The Early Bronze trenches have offered a very clear view into occupation outside the large perimeter wall and possible industrial activities. Our second millennium investigations have revealed additional information on the defensive architecture and the reuse of various phases in successive periods. Iron Age investigations have continued to paint a picture of industrial activities that took place in the last decades of the Hittite Empire and after its collapse. Work in our Byzantine areas over the last two seasons has revealed much about the building of the major fortification system on the summit, and the creation of various phases of residential structures on the North Terrace.*

### INTRODUCTION

Over the course of the previous two seasons (2013-2014) the work at Çadır Höyük (Fig. 1) has continued to explore almost the entire complement of periods represented in horizontal exposure at the site, spanning the fourth millennium BCE to the early second millennium CE.<sup>1</sup> In 2013 we excavated in fourteen 10 x 10 m trenches, some previously open and

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others newly opened. In the 2014 season we operated in eighteen trenches, continuing work in most of those excavated in 2013 as well as opening three new trenches and reopening one that had not been touched for six years. In both seasons we excavated on the mound's summit and northern terrace (primarily Byzantine period), on the eastern slope (primarily second millennium), and on the lower and upper southern slope (Late Chalcolithic and Early Bronze Age in the former, Iron Age in the latter).

#### THE CHALCOLITHIC AND EARLY BRONZE AGE

The prehistoric occupation on the mound is found primarily on the southern slope. As reported in numerous publications (Gorny et al. 1999, 2000, 2002; Steadman et al. 2007, 2008, 2013), the earliest occupation yet documented dates to the late 6<sup>th</sup> or early 5<sup>th</sup> millennium from a floor and wall excavated in our 2 x 2 m deep sounding (Table 1). Over the course of the 2013 and 2014 seasons we operated in five of the ten prehistoric trenches: LSS 3, SES 1-2, and USS 9-10 (Fig. 1). The Late Chalcolithic (Trenches LSS 3, SES 1-2) horizontal exposure dates to the middle and latter half of the fourth millennium BCE; the Early Bronze I exposure (Trenches USS 9-10) dates to the end of the fourth and beginning of the third millennia BCE (see Table 1).

#### Excavations in SES 1-2: Southeastern Slope (Late Chalcolithic)

Previous seasons have seen the exposure of the “Burnt House and Courtyard” phase in these trenches, along with the enclosure and gate system just west of this domestic complex (Steadman et al. 2007, Steadman, McMahon, and Ross 2008). Just south of the Burnt House was a courtyard featuring three fire installations; this courtyard was likely contemporaneous with the Burnt House but also predated it. The courtyard featured two hearths, a bread oven, materials associated with ceramic production, and a kiln (Steadman et al. 2013), all completely exposed in the 2012 season. This entire phase of occupation was removed at the beginning of the 2013 season with the exception of the lower portions of the kiln (a feature that was close to a meter deep).

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Bruce Verhaaren (Argonne Laboratories). In the two seasons reported on here Çadır core team members and article authors include Sarah Adcock (University of Chicago, archaeozoology), Madelynn von Baeyer (University of Connecticut, archaeoethnobotany), Tony Lauricella (University of Chicago, Byzantine/Islamic Area Supervisor), and Songül Alpaslan (physical anthropology). Other valuable team members during this period included the following archaeologists: Evrim Nazlı, Toni Bucklaew, Timothy Buttram, Aurora Camaño, Joshua Cannon, Jon Clindaniel, Andrew Gordon, Laurel Hackley, Alicia Hartley, Mary Horabik, Harrison Kanzler, Dominique Langis-Barsetti, Orlene McIlpatrick, Susan Penacho, Jacqueline Poveromo, Jennifer Proulx, Stephanie Selover, Amanda Shaffery, Stefano Spagni, Kristen Squires, and Burcu Yıldırım. It is due to the talents and hard work of these excellent teams that we are able to report such positive results from our excavations. We would also like to thank the following institutions for financial and administrative support of the Çadır Höyük excavations: the National Science Foundation (BCS #1114811 and 1311511), the Social Sciences and Humanities Research Council of Canada [Insight Grant], Hood College, Memorial University, SUNY Cortland, and the University of New Hampshire.

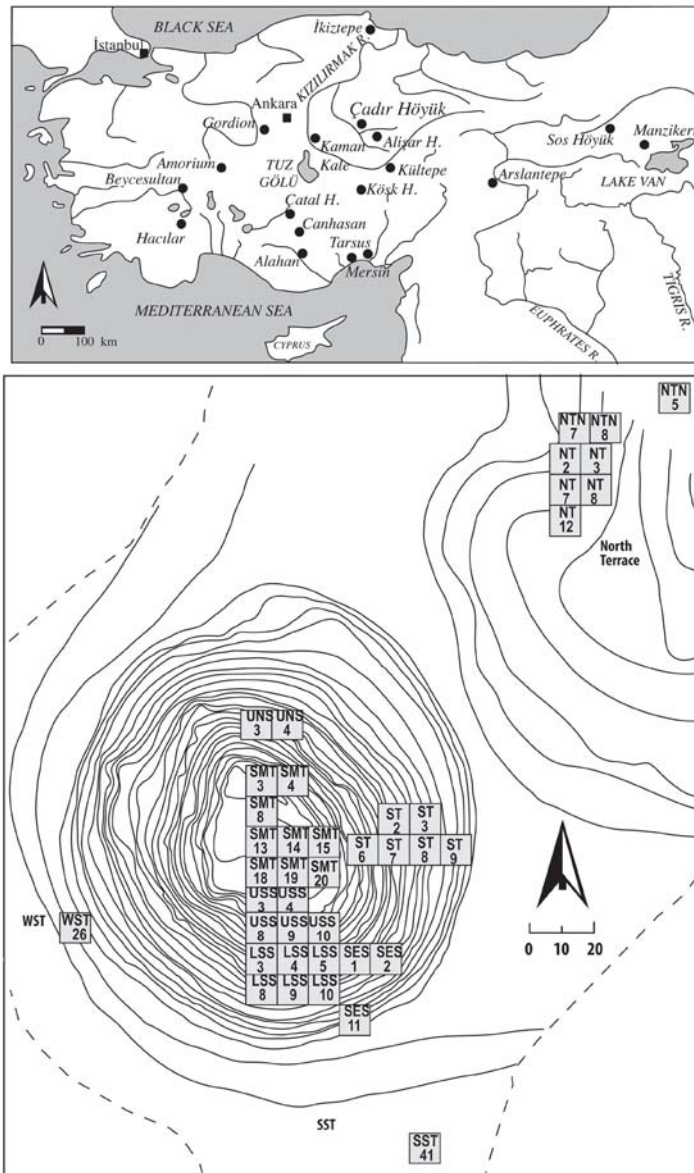


Fig. 1. Map of Anatolia (top); Çadır Höyük topographical plan with locations of excavated trenches (bottom).

On the eastern and western sides of the “hearth courtyard,” and seemingly in the phase beneath, we discovered two structures in the 2013 season. These are likely houses that are “apsidal” or possibly oval in form (Fig. 2). Each structure, (F90 and 129 in SES 1;<sup>2</sup> F7 in SES 2), was accompanied by a hearth and storage bin attached to the western sides of the structures (F120-122 and F128 for the eastern structure). The apsidal rooms are small, roughly 2.5 m wide and between 3-4 m in length (the southern extent of each structure was lost to mound erosion given their proximity to both the mound surface and southern edge). The structure in SES 1 (F90, 109, 129) had portions of a lime plaster floor preserved (F127) as well as a bench or platform fitted into the curve of the northern portion of the structure (F124). These apsidal structures, which date to ca. 3450 BCE (Beta #363869: Cal BC 3440-3440) may represent a short transitional phase in the mid-fourth millennium when this area of the site

was possibly occupied by a more transient population. An infant burial found under the kiln (F99/L103) may have been placed there by the people who built these apsidal buildings. Alternatively, it may belong to the courtyard/hearths phase which, as is explained below, may date

<sup>2</sup> “F” refers to “feature” and “L” refers to Locus in our excavation recording system.

| Çadır Höyük Radiocarbon Dates (2012-2014) |       |      |   |   |                     |
|---|-------|------|---|---|---------------------|
| Sample#                                   | FCN   | Year | Trench & Context                          | 2s max cal age (cal age intercept) min cal age  | <sup>14</sup> C Age |
| Beta 391309                               | 14610 | 2014 | LSS 3: L94 ("Enclosure Wall")             | Cal BC 3335 to 3210 (Cal BP 5285 to 5160) and Cal BC 3190 to 3150 (Cal BP 5140 to 5100) | 4460 +/- 30 BP      |
| Beta 363831                               | 12603 | 2013 | SES 1: F107 (Courtyard)                   | Cal BC 3260 to 3240 (Cal BP 5210 to 5190)   | 4410 +/- 30 BP      |
| Beta 363830                               | 13091 | 2013 | SES 1: L112 (Courtyard)                   | Cal BC 3350 to 3080 (Cal BP 5300 to 5030)   | 4480 +/- 30 BP      |
| Beta 363869                               | 12220 | 2013 | SES 1: L108 W of Apsidal Str.             | Cal BC 3500 to 3450 (Cal BP 5450 to 5400)/Cal BC 3440 to 3440 (Cal BP 5390 to 5390)     | 4610 +/- 30 BP      |
| Beta 391298                               | 14177 | 2014 | SES 1: L130 W of Non-domestic Structure   | Cal BC 3495 to 3435 (Cal BP 5445 to 5385) and Cal BC 3375 to 3350 (Cal BP 5325 to 5300) | 4610 +/- 30 BP      |
| Beta 391301                               | 15450 | 2014 | SES 1: L139 Inside Non-domestic structure | Cal BC 3625 to 3590 (Cal BP 5575 to 5540) and Cal BC 3525 to 3485 (Cal BP 5475 to 5435) | 4690 +/- 30 BP      |
| Beta 363835                               | 13625 | 2013 | USS 10: L50 Fill in F50                   | Cal BC 3090 to 2910 (Cal BP 5040 to 4860)   | 4390 +/- 30 BP      |
| Beta 363834                               | 13021 | 2013 | USS 10: F35 Oven                          | Cal BC 3170 to 3160 (Cal BP 5120 to 5110)/Cal BC 2990 to 2930 (Cal BP 4940 to 4880)     | 4430 +/- 30 BP      |
| Beta 363833                               | 13618 | 2013 | USS 10: L49 Fill Inside                   | Cal BC 3090 to 3060 (Cal BP 5040 to 5010)/Cal BC 3030 to 2910 (Cal BP 4980 to 4860)     | 4370 +/- 30 BP      |
| Beta 391303                               | 14132 | 2014 | USS 10: L60 ash inside F54                | Cal BC 3360 to 3095 (Cal BP 5310 to 5045)   | 4520 +/- 30 BP      |
| Beta 391304                               | 14750 | 2014 | USS 10: L67 Layer over F65-66 Floors      | Cal BC 3190 to 3150 (Cal BP 5140 to 5100) and Cal BC 3140 to 3020 (Cal BP 5090 to 4970) | 4460 +/- 30 BP      |
| Beta 391305                               | 14757 | 2014 | USS 10: L69 Fill in F64 Oven              | Cal BC 3190 to 3150 (Cal BP 5140 to 5100) and Cal BC 3140 to 3020 (Cal BP 5090 to 4970) | 4460 +/- 30 BP      |
| Beta 391307                               | 14767 | 2014 | USS 10: L70 Fill in F69 Oven              | Cal BC 3350 to 3090 (Cal BP 5300 to 5040)   | 4500 +/- 30 BP      |
| Beta 346186                               | 11112 | 2012 | USS 4: F141 Pit                           | 1210 to 1010 (Cal BP 3160 to 2960)  | 2920 +/- 30 BP      |
| Beta 346187                               | 10260 | 2012 | USS 4: L178 Pit Fill                      | 1130 to 970 (Cal BP 3080 to 2920) and 1220-1020 (Cal BP 3170 to 2970)                   | 2870 +/- 30 BP      |
| Beta 346188                               | 9991  | 2012 | USS 4: L176 Pit Fill                      | 1260 to 1230 (Cal BP 3210 to 3180) and 1220 to 1020 (Cal BP 3170 to 2970)               | 2890 +/- 30 BP      |
| Beta 363827                               | 13322 | 2013 | USS 4: L254 Above Circular Structure      | Cal BC 1120 to 920 (Cal BP 3070 to 2870)  | 2850 +/- 30 BP      |
| Beta 868826                               | 13257 | 2013 | USS 4: L244 Fill below F160               | Cal BC 970 to 960 (Cal BP 2920 to 2910)/Cal BC 930 to 820 (Cal BP 2880 to 2770)         | 2740 +/- 30 BP      |
| Beta 363824                               | 12139 | 2013 | USS 4: F160 Pit NW of Circular Structure  | Cal BC 1000 to 840 (Cal BP 2950 to 2790)  | 2780 +/- 30 BP      |
| Beta 391291                               | 14391 | 2014 | USS 4: Fill in pit F208                   | Cal BC 1500 to 1405 (Cal BP 3450 to 3355)   | 3170 +/- 30 BP      |
| Beta 391295                               | 14228 | 2014 | USS 4: Ashy layer in F204                 | Cal BC 2875 to 2580 (Cal BP 4825 to 4530)   | 4130 +/- 30 BP      |
| Beta 346193                               | 10532 | 2012 | ST 8: L88 Inside Casemate Wall            | 1750 to 1620 (Cal BP 3700 to 3570)  | 3360 +/- 30 BP      |
| Beta 363837                               | 11966 | 2013 | ST 8: L99 Inside Hittite Tower            | Cal BC 1660 to 1650 (Cal BP 3610 to 3600)/Cal BC 1640 to 1500 (Cal BP 3590 to 3450)     | 3300 +/- 30 BP      |
| Beta 346191                               | 10569 | 2012 | ST 7: F48 Wall                            | 1770 to 1660 (Cal BP 3720 to 3610) and 1650 to 1640 (Cal BP 3600 to 3590)               | 3420 +/- 30 BP      |
| Beta 391308                               | 14952 | 2014 | ST 7: L74 Ashy Deposit                    | Cal BC 1730 to 1715 (Cal BP 3680 to 3665) and Cal BC 1690 to 1605 (Cal BP 3640 to 3555) | 3350 +/- 30 BP      |
| Beta 363843                               | 13111 | 2013 | NT 3: L32 Fill in F49 (Hearth)            | Cal AD 390 to 540 (Cal BP 1560 to 1410)   | 1610 +/- 30 BP      |
| Beta 363839                               | 12882 | 2013 | NT 3: F60 Exterior (?) Surface            | Cal BC 50 Cal AD 70 (Cal BP 2000 to 1880)   | 2000 +/- 30 BP      |
| Beta 391285                               | 15239 | 2014 | NTN 8: F13 inside F8 Wall                 | Cal AD 415 to 560 (Cal BP 1535 to 1390)   | 1570 +/- 30 BP      |
| Beta 391287                               | 15416 | 2014 | NTN 7: L69 North of Two-Roomed Structure  | Cal AD 545 to 645 (Cal BP 1405 to 1305)   | 1470 +/- 30 BP      |
| Beta 391288                               | 15371 | 2014 | SMT 3: L5 Middle of Room                  | Cal AD 985 to 1040 (Cal BP 965 to 910)  | 1010 +/- 30 BP      |
| Beta 391289                               | 15070 | 2014 | SMT 4: F22 Wooden Post                    | Cal BC 350 to 305 (Cal BP 2300 to 2255)   | 2140 +/- 30 BP      |

Table 1: Radiocarbon dates relevant to discussion in text.





Fig. 2. Photo of Late Chalcolithic "Apsidal Structures" in SES 1 and SES 2.

to approximately one to two centuries later. The horizontal spatial layout of the major features in Trenches SES 1-2 is shown in Fig. 3. This will be relevant to the chronological/phasing discussion below.

Attempts to find correlates have so far yielded no compelling comparanda. There is a Late Chalcolithic "apsidal house" at Orman Fidanlığı, built of stone and about as wide as our houses but not as long (Efe 2001). Also in the west are the Early Bronze apsidal houses at Karataş (Warner 1994). Isabella Caneva's excavations at Mersin-Yumuktepe have turned up apsidal, or oval, houses in what is called the "silo phase," but this dates to the later Neolithic in this region (Caneva and Sevin 2004). A Late Chalcolithic structure at Sos Höyük (Phase VA) is perhaps the closest parallel, but these structures are truly round and may not be built of the same types of materials (Sagona 2000, 2003). At present these oval or apsidal structures at Çadır are fairly unique.

A final comment on the apsidal structures addresses their placement within the stratigraphy. We were exceedingly puzzled in 2013 by the stratigraphic placement of these structures at a lower level than the Burnt House and Courtyard to the north and west. The building style and form of the apsidal/oval buildings was nothing like the very fine attention given to the Burnt House, which radiocarbon dates place in the mid-fourth millennium. Further, our dates for the apsidal houses place them a century or so *later* than the Burnt House, closer to the end of the Late Chalcolithic; the ceramic assemblages obtained from the apsidal and (as will be shown later), courtyard/hearths phase, are also consistent with a habitation sequence that places the Burnt House earlier than the apsidal house phase. Our puzzlement was largely alleviated in the early part of the 2014 season when it became fairly clear that the apsidal houses were built as semi-subterranean structures. Builders had dug down into the existing earlier Burnt House occupation, and even slightly below this level, to lay the foundations of their rounded houses, making the interior floors of the structures to rest at somewhere between 50 cm-1 m below the exterior surface (which likely still exhibited evidence of the Burnt House remains).

The 2014 season in these two trenches saw the removal of the apsidal structures. The more westerly portion of SES 1 remains an enigma, with barely visible plaster lines which may correspond to an underlying structure. In the eastern half of SES 1 and in SES 2 a large rectangular structure began to emerge, with stones resting at the foundation of the western wall (F109

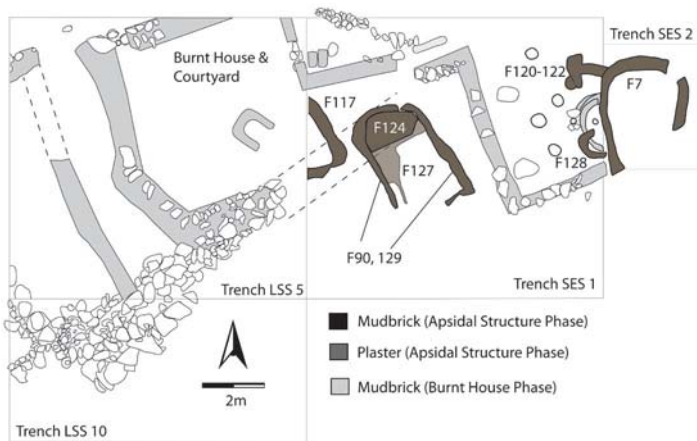


Fig. 3. Plan of SES 1-2 showing Apsidal Structures in relation to earlier Late Chalcolithic architecture (e.g. the Burnt House and Courtyard).

of the feature. Just to the west of this, at the apex of the semi-circle, were two head-sized stones and another hole. Placed around this set of features were three features that may have been pot stands (F120, 143, 144 from north to south), small conical pits within which one could place a large round-bottomed jar. Directly under two of these were child burials, one an infant (under F144, the most southerly burial) and one a child of perhaps 2-3 years of age under the central potstand (F143); we did not have time to excavate F120, the most northerly potstand, but it is likely that a burial rests under this feature as well. The burial under F144 was covered by a carefully broken bowl of a fruitstand vessel, and the one under F144 was covered by a large part of a black burnished storage vessel. Directly next to the semi-circular mudbrick feature, just to its north, were a number of very small holes, roughly egg-shaped; two deposits of seeds were found next to the F137 mudbrick feature, charred bitter vetch next to F137 on its north side, and unidentified grains just to its south. One small find, a small white quartz/crystal amulet was discovered just outside (to the west) of the western boundary wall of the building.

in SES 1) bonded with an east-west wall (F123) which forms the northern extent of the building (Fig. 4); a southern wall (L144) was just emerging at the end of the 2014 season. Situated near the eastern extent of the building (the wall delimiting the building in this area had been largely destroyed by the building of the apsidal house here) was a mudbrick semi-circular feature (F137 in SES 1) with a (post?) hole (in F148) in the exact center

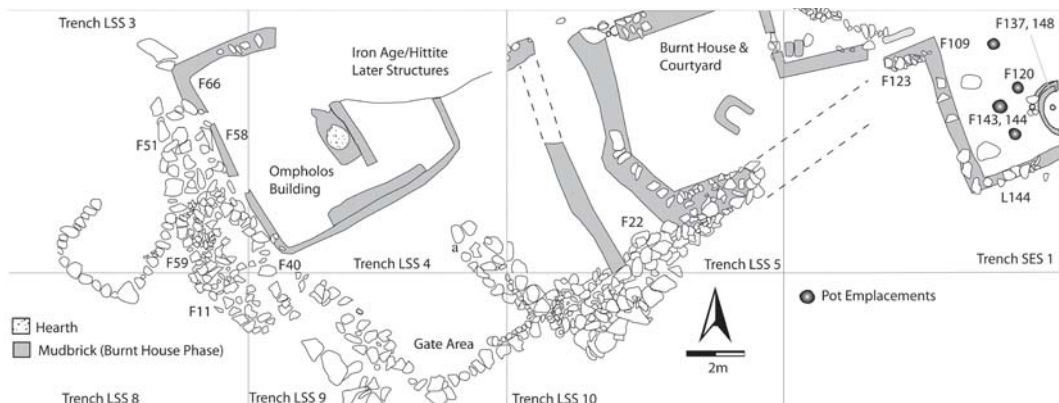


Fig. 4. Plan of entire Late Chalcolithic occupation in LSS 3-5 and SES 1-2.

The rectangular structure is likely contemporary with the Burnt House and Courtyard structure, based both on the ceramic sequence and on radiocarbon results (Beta # 391301: Cal BC 3625-3590). This building had no associated hearth or other domestic equipment. In fact it was largely empty except for the several unusual features. At this juncture it is safe to say that it likely had no domestic function. Further investigation in the coming season may yield additional information as to its role in the Late Chalcolithic community.

### **Excavations in LSS 3: Lower Southern Slope (Late Chalcolithic)**

Excavations in the LSS 3 trench have both created and solved several critical questions for our Late Chalcolithic occupation. It is in this trench that we have the full picture of later Iron Age and Hittite disturbance of the prehistoric levels displayed. Excavations in 2012 and 2013 detailed the creation of numerous Middle and Late Iron Age plaster-lined pits in this area which effectively removed much of the pre-existing (Early Bronze?) occupation here. These pits were filled with ash and ceramics but their purpose remains largely unclear. We were also aware of a Hittite-period disturbance in the LSS 3 and adjoining LSS 4 trenches since our earlier excavations here in 2000 and 2001. The Hittites dug deeply into the accumulated deposit to build a stone structure, the base of which we finally reached in 2014 in LSS 3. The creation of this structure, which may have been a silo, or perhaps a stable, had removed the northern extent of the Omphalos Building excavated in 2000-2001 (Steadman et al. 2007, 2008, 2013). In 2013 and 2014 the remnants of all Iron Age and Hittite building activities were removed to reveal the Late Chalcolithic occupation remnants beneath. There are three major architectural features in LSS 3 and the adjoining LSS 4: portions of the “Enclosure Wall” that served to mark the perimeter to the Late Chalcolithic settlement, the northwestern corner of the Omphalos Building, and an enigmatic feature of stone, mudbrick, and plaster resting on a platform west of the Enclosure Wall and Omphalos Building.

By the close of the 2014 season it became fairly clear that a feature we had named the “platform” in previous publications (e.g. Steadman et al. 2008; F11 in LSS 8 and F40 in LSS 4) was instead part of the Enclosure Wall (F22 in LSS 5) that had turned a corner to head northwest and encompass the back wall of the Omphalos Building just to its east (F51 and F59 in LSS 3). The “platform” represents a thickening of the Enclosure Wall perhaps to shore it up in its positioning against the Omphalos structure; alternatively it is possible that the Enclosure Wall was once this thick all the way along its extent, and the builders of the Omphalos Building cut into it, using its stones, to create the back wall of this structure. The discovery of the northwest corner of the Omphalos Building gives us dimensions for this structure, ca. 7 x 7 m (F58 and F66; see Fig. 4). Little other than a few Late Chalcolithic sherds was found in this area of the structure; one small baked clay animal figurine, likely bovine, was found in this building (Fig. 24a; see von der Osten 1937: 80, Fig. 86 for comparanda at Alişar Höyük). The main use of the interior was to the south and east in the adjoining LSS 4 trench, excavated over a decade ago.

### Excavations in USS 9-10: Upper Southern Slope (Early Bronze Age)

The 2013 and 2014 excavations in these trenches have demonstrated that this was an area heavily used in the Late Chalcolithic/Early Bronze I period. In our previous publication we suggested that near the end of the Late Chalcolithic occupation of the lower southern slope residents, for as yet unknown reasons, may have abandoned this lower portion of the settlement and moved upslope, building a substantial mudbrick enclosure wall (F32 in USS 9) that may have served both as an interior settlement boundary and perhaps also had a defensive purpose. Occupation certainly continued in the lower slope area, but with far less substantial structures as noted in previous publications (Steadman et al. 2008). The Early Bronze Age I (ca. 3150-3000 BCE; see Table 1) occupation at Çadır appears to have been a robust one given the evidence of activity retrieved thus far from trenches USS 9 and 10.

In addition to the mudbrick courtyards on either side of the large enclosure wall excavated in 2012 and reported on previously (Steadman et al. 2013), extensive evidence of industrial usage of this area was recovered in the last two seasons (Fig. 5). Well over a dozen small walls define small rooms that may have served as storage areas; floors inside these rooms sometimes slope dramatically but are well plastered and may have been meant to be waterproof. In the eastern half of USS 9/western quarter of USS 10 a succession of very large fire installations, ovens of some kind, have been exposed. A quite large one discovered in 2013 (F16/L20 in USS 10) showed evidence of heavy use but was perfectly clean and thus its purpose (bread? kiln? industrial level food production?) was not clear. Near the end of the 2014 season another set of ovens, underlying F16 and somewhat smaller, was excavated. The earliest phase of these older ovens (F64/L69 in USS 10) was found to have two broken vessels resting in it (Fig. 6),



Fig. 5. Photos of numerous mudbrick walls, plastered floors, small storage areas, ash pits, and ovens resting outside of large Early Bronze Age mudbrick wall (perhaps settlement perimeter wall?) in USS 9-10. Left: complex as excavated in 2013; right: complex as excavated in 2014.



suggesting that they may have functioned as kilns; one of the vessels was a fruitstand with a fluted neck, sometimes found in ritual contexts. This production area may have been set aside for the creation of specialized vessels.

Also recovered from these trenches were several infant burials in complete or partial pots. These are quite similar to those found in earlier seasons on the lower southern slope (Gorny et al. 2002; Steadman et al. 2007, 2008). These, however, were more complete and were apparently actually buried under surfaces rather than laid into corners of standing buildings as was the case with many of the infant jar burials found on the lower southern slope. These infant jar burials found in USS 9 appear to have been placed when the area was in use rather than after it was abandoned. A further indication that this area either served a ritual function or produced ritual objects was the 2014 recovery of several animal figurines in a nearby ash pit (F80/L74 in USS 10). These were quite poorly made and likely unbaked before apparent deposit in one of the fire installations. Both the fruitstand from the F64 fire installation and the figurines have parallels at Alişar Höyük (von der Osten 1937: 68: Fig. 75: e1617; 79: Fig. 85: e2025). Radiocarbon dating (see Table 1) places these items and associated architectural structures at the turn of the 4<sup>th</sup> to 3<sup>rd</sup> millennia, in what we have informally named the Transitional period, which segues to the Early Bronze I period somewhere around 3000/2900 BCE.

That the occupation here is located at the very edge of the höyük's habitation area is demonstrated by the slopewash in the southern half of the trench, which decreases in width as the excavator lowers the depth of the two trenches. At present this occupational level rests approximately 2 m above the lower southern slope Late Chalcolithic occupation, and approximately 1.25 m below what would have been the Early Bronze I occupation in this area. This led us to speculation, near the end of the 2014 season, regarding the spatial organization of habitation areas at the end of the fourth millennium. At present our best assessment is that near the end of the fourth millennium and into the early third, there was an "outer" occupational area in what we call the "Lower Southern Slope" area of the mound. It is here that we find less substantial architecture, simple firepits, and largely utilitarian pottery. Further up the slope was the more substantial Early Bronze I community, with fairly well-executed building structures, plastered floors, substantial fire installations, and possible ritual activity. What we do not know is if this "inner" community was built upon a pre-existing elevated Late Chalcolithic occupation that also sat at a higher elevation than the Omphalos Building, Burnt House, and Enclosure Wall, or if the Transitional/Early Bronze I inhabitants felt it necessary to artificially elevate their occupational plane. If the latter, then it speaks to a concerted effort to separate what appears to be a more substantial, and perhaps wealthier, occupation from those living in the "outer reaches" below. It is our hope that over the next two seasons we will be able to determine the answer to this question as we continue excavations in USS 9-10.



Fig. 6. Large oven (F64/L69) with in situ ceramic vessels excavated in 2014 in USS 10.

## THE SECOND MILLENNIUM ON THE EASTERN SLOPE

Our work in the eastern slope Step Trench continued in both seasons, with a focus placed on further defining the large 4 m-wide casemate wall first reported on in 2013 (Steadman et al. 2013), and on excavating *inside* this wall to reveal the second millennium occupation.

In 2013 we opened trench ST 3 to a 5 x 10 m extent (5 m on the north-south axis). We expected to catch more of the 3 m wide Hittite-period casemate wall excavated in 2012 in neighboring trench ST 8 (F20 and F42 in ST 8) before it disappeared into the mound slope. 2012 radiocarbon dates, in association with ceramic analysis, indicate that this wall was likely first constructed in the 17<sup>th</sup> century BCE (Beta# 346193: Cal BC 1750-1620) and then repaired or expanded in the Hittite Empire periods (15<sup>th</sup>-14<sup>th</sup> centuries BCE). Excavations in newly opened ST 3 instead offered a chaotic jumble of rock and broken and burned mudbricks which refused to make sense of themselves throughout most of the season. Meanwhile excavations continued below this massive wall in the more easterly portion of trench ST 3, revealing the earlier stratigraphic levels underlying this wall. By the close of the 2013 season nearly all of the major stone features had clarified themselves, including the stone and mudbrick jumble in the northwestern corner of trench ST 3.

The “rock jumble” manifested into a heavily eroded square tower (F1-5 in ST 3) built into the casemate wall (Fig. 7). The tower had been filled with stones and mudbrick rubble, some of which had been robbed out for later building endeavors on the mound. Though not as grand, this tower resembles the 14<sup>th</sup> century tower built at Alaca Höyük (see Nossov 2008). Excavations on the mound’s north slope in previous seasons revealed the presence of a massive Hittite-period construction, likely a wall and possible gate (Gorny 2006), that may have connected to the casemate wall now extant on the eastern slope. Further up the eastern slope we also opened trench ST 2, directly west of ST 3. At the end of the 2014 season excavations in the northeastern quarter of this trench revealed the continuation of the Hittite casemate wall (F51/L22 in ST 2) heading in a northwesterly direction toward the Hittite stone features on the northern slope.

Excavations below and east of the casemate wall in ST 3 helped to further clarify the building sequence in this area (Fig. 8). A smaller casemate wall, approximately 2 m wide (F6, F47, 48, and 51 in ST 8, F6 and F12 in ST 3), rests directly under the wider and more substantial casemate wall just described. Ceramics suggest that this earlier and smaller wall may date to the 17<sup>th</sup> century or a bit earlier; this smaller wall “zig zags” according to the contours of the mound. Interestingly, a stairway that leads to the Hittite tower and likely built in conjunction with it, uses this earlier wall as a footing, demonstrating that the Hittite builders were aware of this earlier wall and made use of it as a foundation for their more massive construction.

Lying below the smaller and earlier casemate wall was yet another stratigraphic layer of stone architecture, this a combined stone and mudbrick complex that dates to the Middle Bronze Age (ca. 2000-1600 BCE) based on the ceramic assemblage retrieved from the area. Though heavily eroded and likely robbed for the later construction projects, it was clear that this earliest architecture was associated with that excavated in trench ST 8 in 2002 when we revealed a wide stone wall (F7 in ST 8) associated with a plaster floor just to its north. At that time



this wide stone wall was interpreted as one arm to a Middle Bronze gateway into the settlement, resting along the southern boundary of the plastered entryway. The stone architecture excavated in 2013 in ST 8 (F55 and 56) is the other arm of the gate; a stone foundation that runs across both trenches (F42 in ST 8, excavated in 2002; F10 in ST 3) may be part of this gate/wall system. These Middle Bronze structures served as a support for the 2 m-wide casemate wall,

which then in turn supported the more massive 4 m-wide Hittite period casemate wall a few centuries later. Our 2013-2014 excavations have enabled us to construct an entire architectural sequence from excavations spanning from 2002 through this past season. We now understand that we have a significant Middle Bronze and Hittite settlement at Çadır Höyük with massive walls that defined, and possibly protected, the settlement.

Our efforts to reveal the second millennium occupation inside the site have been fruitful, especially in the 2014 season. In Trenches ST 7 and ST 2 what appear to be two outdoor courtyards (L74 in ST 7 and L26 in ST 2), separated by a stone wall with mudbrick superstructure (F54 in ST 7) were excavated. These surfaces (packed mud) were quite clean and did not reveal what activities might have taken place in these areas.

A significant stone jumble at the western limit of ST 7 (L73) suggests that a structure once stood there. This courtyard area, which borders a potential domestic area just to its south (in ST 7, further excavation is needed to clarify the southern third of the ST 7 trench), falls inside the major Hittite casemate wall.



Fig. 7. Photo of Hittite (4 m wide) casemate wall and tower (looking south); earlier architecture underlying this latest building phase is on the left side of photo.

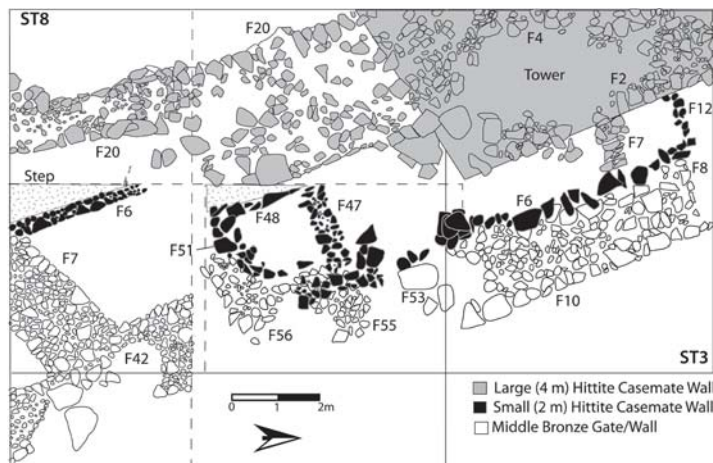


Fig. 8. Plan of entire architectural sequence in ST 3 and ST 8 as excavated in 2002, 2013, and 2014. The earliest (Middle Bronze) is in white, the earlier Hittite 2-m wide casemate wall is in black, the later 4-m wide Hittite casemate wall with tower is in grey.

Radiocarbon dates place the date in the 17<sup>th</sup> century (Beta #391308: Cal BC 1690-1605), roughly contemporary with the building of the casemate wall. A delicate ivory object depicting a flying bird (Fig. 24b) was found in this domestic area. We plan to further expose the interior second millennium occupation in upcoming seasons.

## THE IRON AGE OCCUPATION

We explored the Iron Age occupation in USS 4 on the upper southern slope in 2013, and in two additional trenches, SMT 4 and SMT 15, in 2014. The latter two offered architecture and artifacts that suggest a Late Iron Age date. In both trenches flagstone or cobbled paving stones seem to offer Late Iron Age walkways into the mound summit; further exploration of these periods and areas in 2015 may reveal more substantial exposure and a better understanding of the function of the apparent flooring. The materials recovered from USS 4 continue to demonstrate Early Iron Age occupation and will form the bulk of the discussion here.

### The Iron Age Occupation in USS 4: Upper Southern Slope

The principal Iron Age trench on the site to date, USS 4, has revealed occupational strata dating from the Early, Middle, and Late Iron Ages (see Ross 2010; Steadman et al. 2013). As of the 2013 and 2014 seasons, we are now firmly into the Late Bronze to Iron Age transition, and may have reached 13<sup>th</sup> century levels in 2014. The 10 x 10 m trench, located on the upper southern slope of the mound, displays evidence of activities, both domestic and industrial, that took place at the very edge of the town during these periods.

Opened in 2001, the trench is now over 5 m in depth, and has provided multiple phases of each Iron Age period, as reported in previous publications. The goal of excavations in 2013 and 2014 was to explore the nature of the Late Bronze Age to Iron Age transition, when Hittite imperial control of the site loosened and was replaced by smaller scale, more localized political and economic institutions.

#### *The Late Bronze Age to Early Iron Age Sequence in USS 4*

The earliest levels currently reached in USS 4 have been radiocarbon dated to the Late Bronze Age, and may even belong to an earlier phase of the Late Bronze than expected (Beta# 391291: Cal BC 1500-1405, from L280); but see below for comments on the USS 4 radiocarbon dates. Dominating the 10 x 10 m trench in this layer is a probable metal-working installation (Fig. 9), comprising a bright, smooth round plaster surface (F214) of 2.3 x 2 m, laid atop a burnt mudbrick substructure, into which was sunk an 80 x 60 cm semi-rounded, flat-bottomed pit (F215) with a layer of yellow clay at its base. Around the edges of F214 were several work areas and small trash pits into which ash had been swept. Other shallow depressions held larger pieces of carbonized wood and burnt chunks of mudbrick. The depression itself does not seem to have been highly fired; it appears that metals were melted within coarse ceramic trays with 6-10 cm high walls that dominate the ceramic assemblage of this phase (see

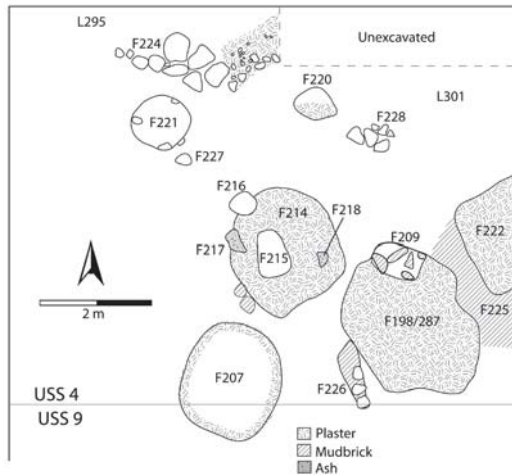


Fig. 9. Plan of USS 4 showing the Late Bronze to Early Iron transitional phase in USS 4; F214-218 represent the possible metal-working installation.

eastern side had an inclined layer of sandy soil at its base. The clay pieces sat atop and amidst significant numbers of sherds, animal bones, lithics, and groundstone tools. The initial usage of the pit may have been for trash, but eventually it seems to have been transformed into a storage facility for sand and clay used in pottery production, or for clay used for molds and trays for metal-working in conjunction with the neighboring installation. Contained in this pit and nearby were a number of lithic tools, including a pair of adzes and a sherd that had been chipped down to adze form. These items may suggest woodworking in association with metal-working; a bone awl or perforator and bone spatula in the F207 pit may also have been used in craft-working.

Two additional pits north of the plaster installation appear to have been used for trash and ash-dumping activities: F220 and F221. At a couple of meters distant from the rest of the features, these may have served as an extension of the workshop area, or were used by a second workshop further north, beyond the excavated area. These northern pits are associated with several stone wall sections near the trench's northern balk, which may have demarcated the industrial space from other parts of the contemporary town. Other wall segments, of burnt mudbrick, were used in conjunction with the metallurgical installation. A room at the eastern balk, with poorly-preserved mudbrick walls and an ephemeral yellow and white mud plaster floor, contained a number of lithics and a bronze bead.

These features represent a mostly outdoor area that belongs to the Late Bronze Age, or to the transition from the Late Bronze to the Early Iron Age. All elements of the installation were set atop and partly dug into a solid mudbrick platform or surface, F213, which extended across the entire trench. F213 appears to have served to level an area set just inside the Hittite enclosure wall (excavated in USS 9/780.890 in 2001), perhaps as a road bed or terracing/leveling surface.

below). The fill around and above the installation contained a significant amount of iron slag (confirmed by pXRF), in the form of prills and small fragments. The slag is likely the product of secondary smelting of bronze or iron, in preparation for casting or sheet hammering, or ingot production. As very few base pieces survive from ceramic trays in which the metal was melted, using a layer of fuel set on top, it is possible that the refined metal stuck to the bases and was chiseled off somewhere outside the trench.

About 50 cm southwest of the plastered installation was a deep pit (F207) that contained a considerable amount of packed clay, which came out in hand-sized clumps. The pit measured over 2.2 x 1.75 m, and was 40 cm deep. On the western side was a sloping "ramp" down into the pit, while the

*Early Iron Age Phases*

Above this Late Bronze Age level was a layer of fill, some of it clearly intentionally laid as a base for the next set of features. These, probably dating to the earliest phase of the Early Iron Age, include two semi-subterranean rooms, a deep pit filled with ash, two rubbish pits, and two plaster-lined pit-like features or depressions. No hearths have been located, and the associated tools and ceramics suggest an industrial use of the area – but different from the Late Bronze metallurgical function. At least two subphases are represented by replastering of some of the features.

On the eastern side of the trench, two rounded, plastered features, F199 to the west and F205 to the east, represent the earliest phase in a series of Early Iron Age “structures” in the same location. F199 measures 2.45 m in diameter, and its northern edge was set against a pile of small stones (F211); F205 measured 2.3 x 1.8 m. Both spaces have a flat surface; whether they were open air (which seems unlikely) or had a superstructure of a perishable material is unclear, as is their function. F205 was eventually replaced by F200, with the same measurements, but with a pile of clumpy plaster 25 cm thick on its western edge, sitting atop the edge of F199 (which therefore seems to have gone out of use by this time). On its northeastern “corner,” F200 was supported by a diagonal wall of small stones.

Two pits, each showing multiple phases of use, sat south of F199 and F200/F205. Just south of F199 was a pit containing three superimposed layers of plaster with fill between them: these were F208 (earliest, measuring 2.2 x 1.7 m), F206 (1.75 x 1.5 m), and F201 (1.5 x 1.4). While the three main phases of use, each with a thick layer of plaster, were designated with feature numbers, it is likely that the sides and base were periodically renewed with plaster, and the feature was in continuous use for several seasons or years. Finds of organic material, animal bones, small stones, and pottery suggest it served as a rubbish pit. A second, contemporary pit, F202, was located south of F200/F205; it measured 1.5 m in diameter and had a similar range of contents.

In the southeastern corner of the trench a pair of features, each also with multiple phases of use, likely functioned in conjunction with F199 and F200/F205. On the far eastern side was a deep, round pit with straight sides, F212. It measured 2.5 m by over 1.5 m (going into the eastern balk); the rounded base and sides had an ephemeral whitish layer of phytoliths, perhaps remnants of a mat lining. The lowest fill layer within the feature was very dark and gritty; this soil may represent part of the initial construction, or the dumping of a particular material within the pit. Looser pit fill soil above included significant amounts of pottery and bone, a bronze hook, and lithic and groundstone tools, some typical of woodworking (J. Geyer, personal communication). A later phase of this pit is represented by F196, measuring 2.2 x 1.9 m, with a mudbrick edge. This later pit contained a great deal of pottery and animal bone, especially jawbones; it probably served as a trash pit, perhaps from a butchery operation.

Just west of F212 was a shallow, sloping sub-rectangular feature, F198, which measured 2.5 x 2 m and had at its base and sides a crusty white and yellow plaster, topped by a centimeter-thick yellow mud plaster layer. From north to south, this feature sloped nearly 20 cm downward. The crusty base suggests that it held a liquid, which could be drained off down slope. Along the eastern edge of F198 was a grayish brick with a depression, perhaps from a

post that held up a perishable superstructure or covering. During a later phase of use, builders added a “step” made from a disordered collection of mudbricks. F198 went out of use at some time, perhaps contemporarily with F212, and was replaced by a round and shallow pit, F197, with a very similar crusty plaster base.

In the northeastern corner of the trench sat a deep pit, F204. F204 measured 1.4 x 1.4 m, and had a compacted bricky edge; its base was a layer of white phytoliths. In its earliest phase, F204 held a 26 cm thick fill of dark ash and broken pottery. Its use as a hearth is precluded by the absence of burning or hardening of its edges. Instead, it seems to have held the remains of intensive dumping from one or more hearths or furnaces. An upper layer of fill bottomed out at a mudbrick set in one corner. Several radiocarbon dates on charred pieces of wood from F204 yielded unexpectedly early dates, all belonging to the early to mid-third millennium. This suggests that the Iron Age residents at Çadır were scavenging and recycling wood from earlier levels at the site; such a phenomenon of reuse has also been proposed for sherd materials of the Chalcolithic and Early Bronze Age, which Iron Age inhabitants reshaped as *ad hoc* tools.

Taken together, this collection of Early Iron Age features suggests an industrial and midden function for the edge of the settlement at the start of the Iron Age. Industrial activities shifted from metallurgy to something else, as yet undetermined (but probably including some wood-working). One possibility is felt-making or some other textile-related activity. Felting requires wool to be steeped and compressed (often by beating or stomping) multiple times in warm water and left to dry. Given the later (Middle Iron) leather and textile production proposed for the same location (see Ross 2010), such a usage of local products would make sense. The area retains features that suggest heating and soaking.

In the succeeding Early Iron Age phases of occupation in USS 4, four superimposed levels of round features or structures were uncovered in 2013. The first layer of these was built just over F199 and F205/200, the plaster-covered surfaces in the west-center of the trench. F186, atop F199, was 2.2 m in diameter; F187, to its east, was 1.7 x 1.5 m. North of these was a series of stone walls with mudbrick atop and against them. A later reuse of the ash-filled pit (F204), labeled F193 in 2013, took place at this time. Additional plaster-lined trash pits sat to the south: F188 in the southwest corner, and F189 to its east.

A later Early Iron Age phase held a similar collection of features; above F186 was a two meter-long ovoid feature, F179, with a smaller round plaster surface, F180, to its east, measuring 1.5 m in diameter. F179 was surrounded by a 10 to 15 cm thick area of ash and charcoal, suggesting a perishable superstructure set in wall trenches. Because F179's plaster was somewhat ephemeral, it may have been an outdoor space, perhaps a small fenced area for animals. Smaller plaster-lined depressions to the east may have been trash dumps or work areas. An ash-filled rhomboid area (F177) may represent the final use of the earlier ash pit.

The subsequent Iron Age level contained several similar semi-subterranean plaster-lined features, in much the same locations and arrangements. Near the center of the trench was F163, 2.5 x 2 m, with a thickly-plastered northern edge; a compact brick step or bench was situated inside the northern edge, while a single pit, under 1 m in diameter, sat on the eastern side (F168). Along the northern edge of the trench in this layer were several wall-like features



made of stones of significant size, but seemingly walling off areas just beyond the trench line. Two short walls ran from the north and west balks and corner, containing a 20 x 20 cm area of white ash, which also continued south of the walls. Along the eastern side of the trench, contemporary to F163, additional rounded plaster-lined depressions and surfaces went into the eastern balk. These may have been the remains of structures or work areas similar to those in the center of the trench, but were harder to recover because of their location. Another 2 m diameter plaster-lined feature is F181, in the southeast corner of the trench.

The final (latest) phase of Early Iron Age architecture represented in the 2013-14 excavations in USS 4 seems to follow the previous building types in size and style. In the center of the 10 x 10 m trench was a round plaster surface (F154), with a thick layer of plastery brick, perhaps representing a step down to the surface, along its northern edge (Fig. 10). Three smaller plaster-lined depressions were set along the edges: F158 on the northeast side (1 m diameter, with a rubbish fill); F159 to the southeast (1.25 m diameter, with a hardened and smooth plaster base, perhaps to hold liquids); and F160 to the northwest (85 cm diameter, containing heavily burnt materials, perhaps a trash pit for discarded organics or hearth sweepings).



Fig. 10. Photo of the later Early Iron Age phase in USS 4. A circular structure with associated pits (for trash and perhaps storage) (F154, 158-60) was possibly used for temporary shelter. (Note: the mini-balks were used for excavation control purposes.)

Along the eastern edge of the trench, a series of superimposed pit-like features were contemporary to F154 in the center. The earliest was a pit apparently dug for trash deposits, F167; over a period of time, layers of small cobblestones, pottery, and bone were deposited, covered with clay and ash, and then new midden deposits laid. North and south of this were two more plaster-lined depressions – F156 in the north, and F153 to the south – which both ran into the eastern balk (and the north balk, in the case of F156). These

may therefore have represented additional residential or work spaces, like F154, extending beyond the trench. Each showed multiple phases of replastering. A smaller subsidiary pit (F155) sat southwest of F153, much like the pits along the edge of F154. As in earlier phases, it is likely that these features were used in manufacturing processes, perhaps for leather-working, as well as animal butchery and trash deposit.



*USS 4 Ceramic Assemblage (See Appendix for Ware Descriptions)*

Ceramics excavated from USS 4 during the 2013-14 seasons have provided significant new information on predominant vessel forms, decoration, and manufacturing techniques during the Late Bronze to Early Iron Age transition. Limited numbers of typical mass-produced Hittite vessels have come to light, but the effects of Hittite domination are evident in the ceramic repertoire into the Early Iron Age. At the same time, distinctly local traditions reemerged when Hittite control over the Çadır region lessened.

*Late Bronze Age Ceramics*

At the very end of the 2014 season, a new ceramic repertoire began to emerge from the lowest levels reached in USS 4. In fact, this pottery derived from L289, the bottom of deep pit F207, which may include vessels and fragments encountered when the pit was created; vessels were incorporated into its basal fill. The forms comprise wheelmade jugs, jars, and bowls; the hard-fired wares include buff, pink, red, and brown fabrics, with only grit temper (Fig. 11).

*Early Iron Age Ceramics*

By contrast, in the level atop the mudbrick platform associated with metal-working activities, the ceramic repertoire rapidly transitioned to a set of mostly handmade, heavily tempered (including both grit and chaff) vessels. A dominant type in this layer is a flat-bottomed tray, mentioned above (Fig. 12). This vessel type is mainly attested by rim and carinated wall sherds, which come up from an angled base by 6 to 10 cm and end in a simple rounded rim. These sherds were heavily burnt, leaving them brittle; it is unclear whether the trays to which they were attached were oval or rectangular, as the rims demonstrate no curve. While the exterior was left rough, the sloping interior was smoothed and burnished, perhaps to minimize porosity and absorption of contents.

In this and subsequent levels of Early Iron Age occupation, excavated in 2013 and 2014, the full range of Early Iron Age pottery became evident. Nearly all vessels from these levels were of coarse fabric, frequently chaff-tempered and always grit-tempered. Most vessels were handmade, including frequent coil-made jars and jugs, as well as slab-constructed large jars and trays. Forms include both shallow open and deeper bowls; some of the shallow forms recall Late Bronze Age platters, and their rim shapes derive from earlier Hittite prototypes. Larger jars include both closed neck forms as well as holemouths (Fig. 13).

Most distinctive in this assemblage is the choice of decorative techniques, many of which return to methods attested in the Chalcolithic and Early Bronze Age (Genz 2004). Jugs and bowls, both coarse and slightly finer, feature a burnished red slip, often with significant amounts of chaff on interior and exterior surfaces. Other vessels were black-burnished, recalling Chalcolithic wares, but with even more chaff in the fabric. Occasionally, knobs were applied near or on the rim of a bowl or small jar/jug, also reminiscent of local Chalcolithic pots. Occasional rope impressions on large jars were likely functional, with rope or string used to hold a vessel in shape while drying. The exception was on a pair of large, coarse platters that had rope impressions on the flattened lip. These were a survival from earlier Hittite types, perhaps even heirlooms.

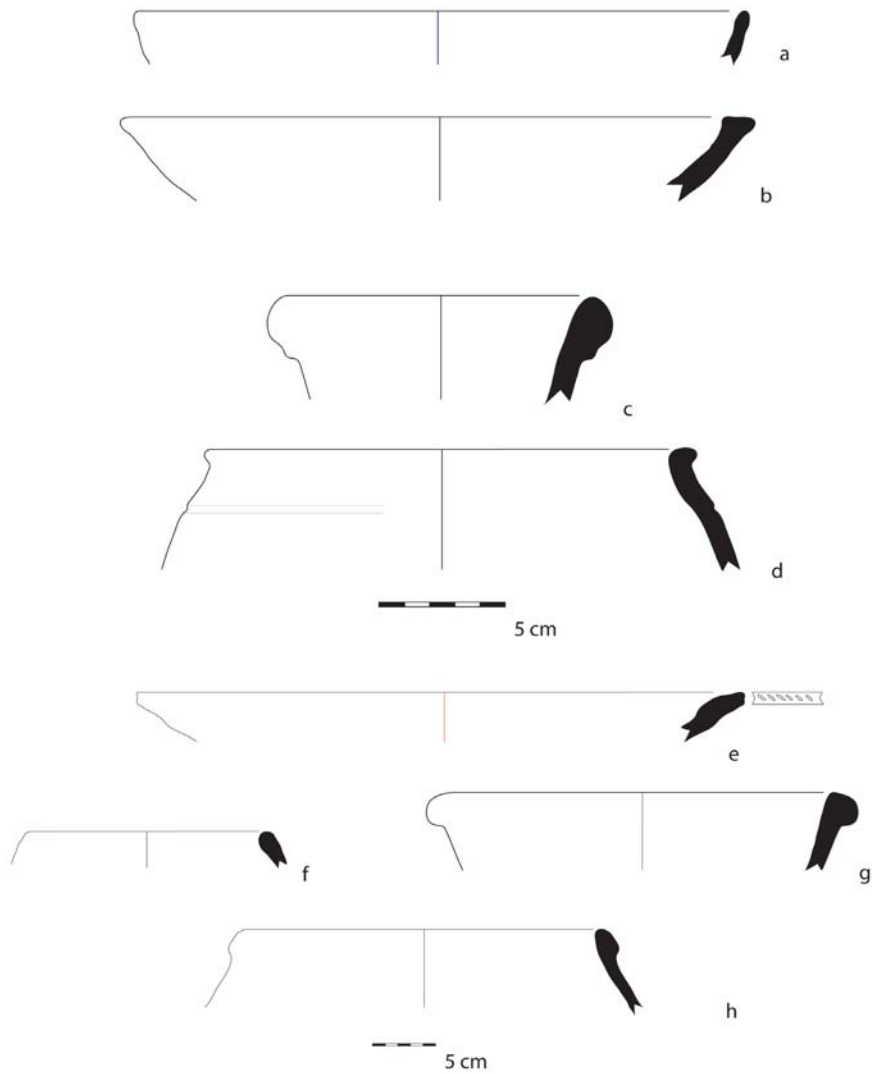


Fig. 11. Late Bronze Age ceramics from USS 4. See Appendix for descriptions.

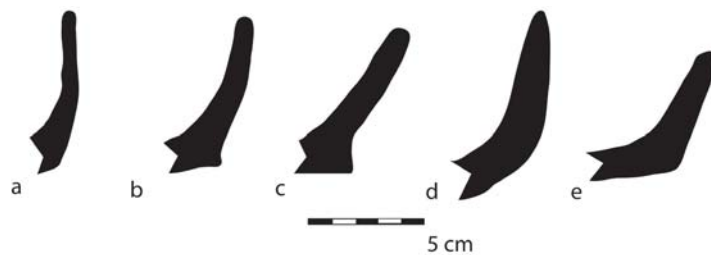


Fig. 12. Early Iron Age ceramics from USS 4 featuring flat-bottomed trays. See Appendix for descriptions.



Fig. 13. Early Iron Age ceramics from USS 4; note derivation from Hittite prototypes. See Appendix for descriptions.

## THE BYZANTINE OCCUPATION

Through the Byzantine excavations in 2013 and 2014 at Çadır Höyük, we are now able to provide a much stronger chronology of occupation for the Byzantine period. Work has continued in NTN 7 in both years, and initial work has been done in new trenches NTN 8 and NTN 5. We have little to report from NTN 5 (10 x 10 m) this year, as much of the season was occupied with removing rock fall and topsoil, and isolating the tops of walls. NTN 8, however, proved to be a very rich trench in terms of architectural sequencing, and through the excavations in it, together with those in NTN 7, we can now trace the occupation from the Late Antique period through to the Middle Byzantine abandonment. Excavation on the mound took place in several trenches, most notably in SMT 3 and 4. Through these excavations, as well as a survey of the entire circumference of the fortification wall, we now have a good understanding of the manner of construction of the fortification walls and the probable dates for their construction and use. We also now have preliminary evidence for the pre-Byzantine (i.e. Iron Age and Roman) occupation on the summit.

### Current Excavations in SMT 3 and SMT 4: The Mound Summit

The summit excavations focused on four areas of exploration: the south side of the mound in SMT 18 (findings were minimal and will not be reported upon at present); the standing piece of the fortification wall in SMT 4; the area immediately behind that wall on the summit itself in SMT 3; and a survey of the entire fortification wall in order to isolate the overall circumference and construction. After the 2014 season, we can now say that the summit's defensive wall is a massive construction stretching nearly 200 m around the top of the mound. In our largest exposed area (SMT 3 and 4) the wall is approximately 4.7 m thick and built with large stones bound with a sandy mortar. As noted below, a radiocarbon date from SMT 3 indicates a possible construction date in the Middle Byzantine period.

The Byzantine excavations in SMT 4 in both 2013 and 2014 focused on clarifying the construction techniques used for establishing the enormous fortifications and trying to understand the material below the defensive wall. The 2013 work in a 6 x 6 m trench served to clarify the fortification walls substantially (Fig. 14). F1, the bottom half of the standing tower wall, was bonded to F3, the massive stone defensive wall. Both were built of granite stones held together with a sandy white mortar. In the top levels (L1 and L3), a large amount of mortar debris was discovered. This was explained when we reached the bottom of the fortification wall, which had irregularly spaced cylindrical openings in the bottom layer of mortar, into which wooden beams had been placed originally (then covered with additional mortar), probably for extra support. These beams were typically 10-12 cm, although some were as small as 4 cm (Fig. 14). This building technique was used in all parts of the wall that we have investigated.

Below the fortification walls, a number of probable Iron Age walls and surfaces became apparent (F4, F5, and F6), which were completely covered over by the construction of the Byzantine wall. In 2014, when we widened the trench to 10 x 10 m, we were able to more completely understand how the area was prepared for the Byzantine fortification, since building a wall of this size on a slope took a great deal of preparation. When the Byzantines needed to

build over unstable areas of loose fill, or to combat the downward slope of the mound to the north, they prepared the area by building earthen “boxes.” (Figs. 14-15). These boxes are apparent in SMT 4, and are constructed of pieces of thin, organic matting placed vertically to form a cube, and then packed on either side with mud (F16, F19, F20, and F21). These boxes were filled with compacted mud and traces of plaster (L16 and L17). Excavations revealed that this system of preparation used two sizes of earthen boxes: a shorter, broad box, which was topped by multiple narrower but taller boxes. Excavation at the bottom of the flatter box (F21) also exposed an intact wooden peg (F22), which we initially believed to belong to the Byzantine period. However, radiocarbon dating places it in the Late Iron Age (Beta #391289: Cal BC 350-305), indicating that the Byzantines seem to have largely leveled and covered over the Iron Age habitation in this area of the mound. To date, this packed earth technique has only been observed in SMT 4.

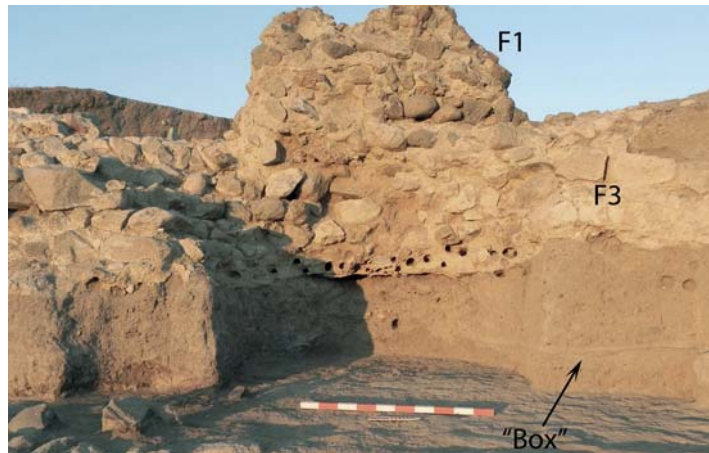


Fig. 14: Photo of Byzantine wall (F3, bottom) and remnants of the tower (F1, top) as excavated in 2013-2014 in Trench SMT 4; note outlines of the construction “box” in section below wall.

Although we have been calling the extant standing piece of the wall a tower for many years, it was only in 2014 when we opened SMT 3 that we were able to confirm that indeed this was almost certainly a tower. After the removal of topsoil, two features (F1 and F2) forming a square with the large defensive wall F3 (in both SMT 3 and SMT 4) were exposed. Work then focused on defining this room more completely. Just under the topsoil, L4 contained a number of rocks, which probably fell from the wall. Below this, level with the top of the visible fortification wall (F3), was L5, which was the layer above a compacted mud surface (F4) which contained several pits (F5-7). A radiocarbon sample was obtained from L5 which dates this floor to the tenth or eleventh century (Beta #391288: Cal AD 985-1040). In the southeast corner of the room a small feature (F10) may have been the base for a staircase perhaps serving the tower.

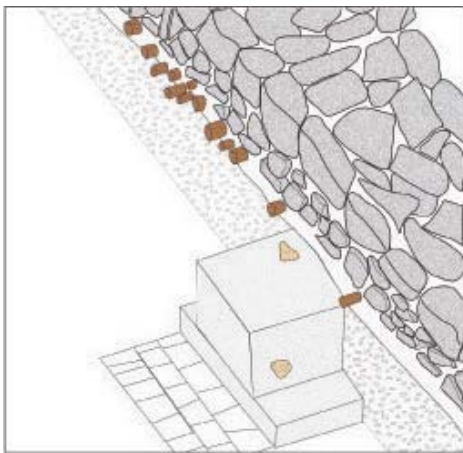


Fig. 15. Artistic rendering of box “construction” (F16, 19-21) in SMT 4 underpinning the Byzantine wall (drawing by Kristen Squires).

### Current Byzantine Excavations in NTN 7 and NTN 8: The North Terrace

When we opened NTN 7 (10 x 10 m) in 2008, we almost immediately discovered a Middle Byzantine complex in the southern part of the trench (F1, 2, 6/59, 9, and 10), with a large courtyard area covered with a plaster surface (F15) in the northern part of the trench. Our goal in 2013 and 2014 was to establish the chronology for the earlier structures below this complex and courtyard (Fig. 16). Excavation within the room bounded by F1, 2, 9, and 59 (also F6) in 2012 and 2013 revealed several layers of compacted mud surfaces within this room, which showed that the foundations of F2, the most northern wall of the complex, were substantially higher than F1 and F59. The F2 wall was built upon a mud surface (F49) which was removed in 2014 to reveal an underlying fill layer (L50). Underneath were two more compacted mud surfaces (F76 and F78) the lower of which (F78) being the surface upon which F1, F9, and F59 were set. A doorway in the latest F2 wall (later blocked) led into the courtyard to the north (F15 and underlying layers). The date for this complex is provided by a coin of Anastasios I (491-518 CE) recovered in 2012 from a locus (L15) just east of F9.

In 2014, we began exploration of the west room of the structure in an attempt to isolate the chronology for the whole complex. We removed the Middle Byzantine flagstone floor (F7) in the western room. It very quickly became clear that this room was a later addition. Beneath the F7 floor were compacted soil (L58) and fill (L62) layers; set in L58 was a pillar stone for roof support. Underlying these in the room was F61, a compacted surface upon which F10, F2, and possibly F6 (the latter a possibly earlier version of F59) were set. F61 featured a hearth (F63) and square pot stand (F62) cut into the underlying floor (F64), the latter perhaps the earlier incarnation of floor F61. At the base of this room under F64 is a very different complex of features: two surfaces (F69 and F71) and the remains of a massive wall (F70; 1.85 m long x 65-80 cm wide) separating them. The

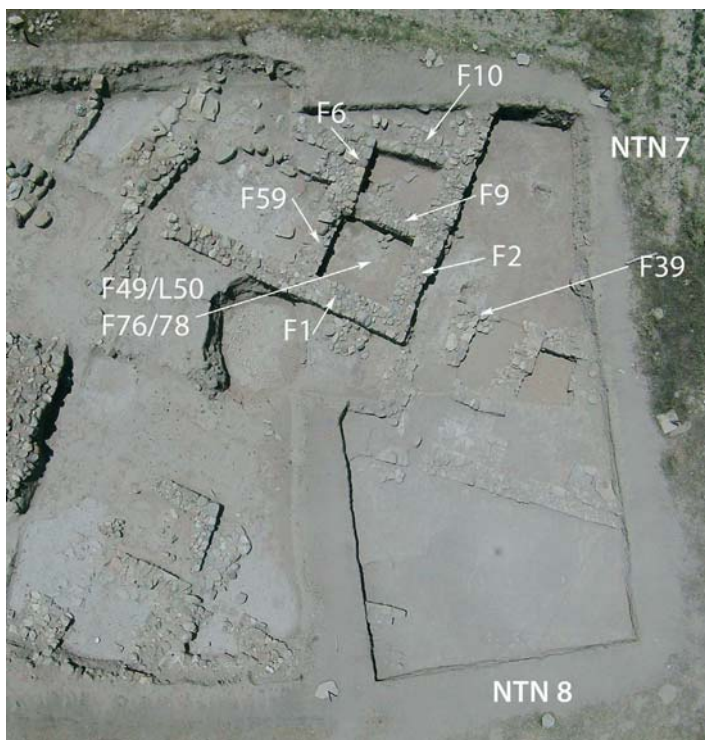


Fig. 16. Aerial photo of Trenches NTN 7 and NTN 8 on the Northern Terrace; walls and surfaces that are labeled were excavated primarily between 2008 and 2013.



surfaces are very different, with F69 probably being an external surface and F71 an internal one. It appears, then, that F64 was a deliberate attempt to cover over the remains of wall F70. Under F69 were several surface layers (F73, F79, and F80), either different phases or sublayers of the same floor. Beneath F71 was another surface (F74), followed by a loose locus (L70), essentially filling in the spaces of F81 (Fig. 17), which was a tumble of rocks which may have served as a subfloor in this area. These earliest remains may date to the Roman period, but as yet we have no ceramic assemblage or carbon dates for this earliest phase.

North of these two rooms is a large courtyard area, and in 2013 we exposed the earlier phases of this. It now seems clear that the entire area served as a courtyard throughout the Late Roman and Byzantine periods. As noted above, F15 was the large plaster courtyard that probably corresponds to the Middle Byzantine period; a small wall (F17 and F21) may have served as a gate separating the internal and external portions of the courtyard. The western part of the courtyard contains compacted surfaces with pithos holes and pits, suggesting an external courtyard.

In the eastern half of the trench, the 2012 removal of F15, and the subfloor F30, resulted in the appearance of two small wall stubs (F35 and F36) which may indicate a gate to the complex. Underlying these first were natural fill layers followed by a mudbrick surface (F38) with a stone feature (F39) built within it (see Fig. 16). F39 had a large stone at the western end of it that looks like a pillar or doorway stone, and thus we wonder if this was the lower level of the gate. Two interesting features suggest that this wall or gate dates to the Late Roman period. First, a radiocarbon date from a locus just south of the feature (L69) indicates a mid-6<sup>th</sup> to mid-7<sup>th</sup> century CE (Beta #391287: Cal AD 545-645) date. In addition, some Late Roman red-slip ware was found just above this area (in the removal of the F35 and F36 wall stubs). Ceramic analysis of this entire area is ongoing and will be published at a later date.



Fig. 17. Photo of the more westerly room in larger NTN 7 complex showing the earliest excavated phase (F69-81) that may date to the Roman era.

Discoveries in NTN 7 led to the decision to open the neighboring trench, NTN 8, in 2014. The exposed complex of rooms appears to represent several periods of rebuilding, ranging from the Late Antique period through to the temporary Seljuk occupation of the area (Fig. 18). The latest occupation belongs to the Seljuk period, which was fairly ephemeral. Finds from this level included a coin (found on the surface), a belt buckle/brooch, as well as several small ashy areas suggesting

transitory occupation. The top levels included a couple of small, fragmentary walls (F6 and F12) and a rebuilding on F3, the major wall of the complex (discussed below). The proximity of the tops of the walls to the plow zone also means that the area was heavily disturbed.

The trench provides a parallel set of structures to those seen in NTN 7 excavated in 2012, and currently looks to have been constructed through a similar process of building and rebuilding. NTN 8 has a large complex of rooms located in the western area of the trench, with a large courtyard to the east. The Middle Byzantine occupation was visible in the rebuilding of F1 (F33 in NTN 7), F3 (6.95 x 0.77 m), F4 (1.08 x 0.78 m), and F10 (2.15 x 0.80 m). Similar surfaces to those found in NTN 7 were found in

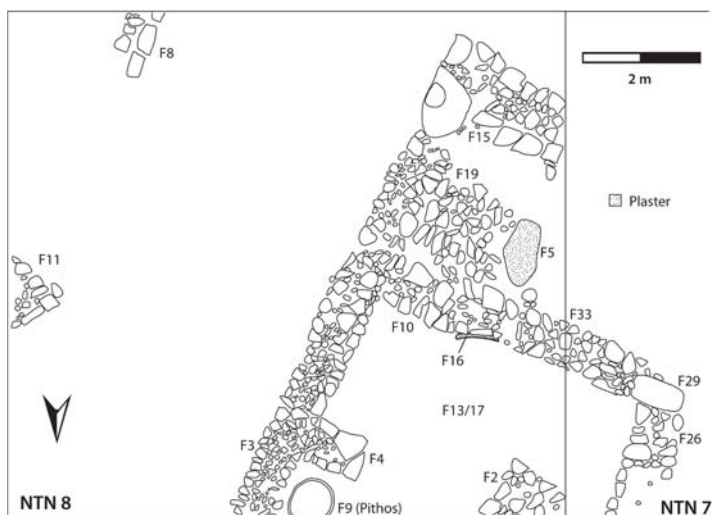


Fig. 18: Plan of NTN 8 trench showing connection to walls excavated in NTN 7 in 2012-13.

F5 (south of F10; a hard plaster surface), F13 (north of F10; a baked mudbrick surface), and F19, the foundational rocks of F5. Further, a large in situ pithos (F9), located between F4 and the balk (see Fig. 18), was covered only by topsoil. While excavation in this trench is in its early stages, it seems likely that F3, at the very least, dates to an earlier period. Beneath F13 was a fill layer above another mudbrick surface (F17) on which was set a piece of standing wall plaster (F16), which corresponds to neither the extant floors or walls. While this must have been a part of an earlier construction that was either incorporated into a later one or served an unknown purpose, it seems likely that this corresponds to the similar finding of in situ plaster in NTN 7 (F53) attached to wall F33. Further, a radiocarbon date from the removal of F13 gives a rough date of 415 to 560 CE (Beta# 391285: Cal AD 415-560), and was in a sealed context. A coin of Justinian I (527-565 CE) excavated in the topsoil also provides circumstantial evidence for the presence of Late Roman construction. To the west of this complex there appears to be a courtyard used throughout the period. At the close of season several pit cuts were visible which will be investigated in the coming season.

#### STUDIES ON SETTLEMENT SIZE AND EXTENT

As a result of our growing interest in the settlement size and extent during the varying periods at the site, we launched a project in 2013 and 2014 to investigate this issue. Work focused mainly on the southeastern and western sides of the mound. In 2013 a small-scale

survey (1700 m<sup>2</sup>), divided into 425 2-m grids, was conducted on the western side, and test pits were opened in both the western and southeastern areas. The number of sherds in each grid was counted and recorded to conduct an analysis of the pottery density. Analysis suggests that periods beginning with the Early Bronze I and ending with the Roman period are represented, with no clear evidence for the earlier Chalcolithic and later Byzantine periods. The Chalcolithic occupation was mainly restricted to the southern slope of the mound; however, the lack of clearly identifiable Byzantine material was rather unexpected as we know from the work on the North Terrace that during the Byzantine period the settlement expanded drastically. Our more intensive investigation, therefore, was meant in part to confirm an absence of Byzantine occupation on the western mound skirt area.

The pottery frequency across the surveyed area was studied visually after inputting the sherd count data into a GIS application (Fig. 19). The pottery density drops drastically approximately 12 m from the edge of the mound; this corresponds roughly with where we believe the nearby stream flowed in the past. While this might indicate settlement in this area beginning in the Early Bronze I period, the possibility of sherd presence due to mound erosion must be considered.



Fig. 19. Satellite image of Çadır Höyük with associated pottery frequency recovered in the surveyed area.

This initial study was followed by the excavation of two test pits, one in the surveyed western area (WST 26) and another on the shallow incline of the southeastern slope (SST 41). In both areas a 10 x 10 m trench was initially opened, though only eventually the northwestern quadrant of WST 26 and the eastern half of SST 41 were excavated to any depth. WST 26 was excavated to a depth of 60 cm; heavily eroded sherds and broken mudbrick were the

primary discoveries in this sounding. It should also be noted that a group of stones located outside the sounding area, which initially looked as if they formed a wall with a northeast-southwest alignment at the southern side of the quadrant, was partially excavated while removing the topsoil. However, it became clear that these stones were more likely a field boundary, which we believe to be relatively new, at least post-Medieval in date.

The SST 41 sounding was located relatively close to the former recent shoreline of the Gelingüllü Lake, an area which has been repeatedly flooded over the last two decades. The sounding was located at the northwestern corner of the southeastern quadrant. After removing 80 cm of silt which contained only eroded sherds we came upon a row of stones (F1 in



Fig. 20: Photo of Trench SST 41 showing the F1 wall at the base of the trench.

L6; Fig. 20) at a depth of 1.2 m. The wall was oriented northwest-southeast and poorly built; associated ceramics suggest that the wall may be Late Roman in date. We hope to determine whether earlier levels exist beneath this possible Late Roman occupation.

In future seasons we intend to continue our evaluation of the Çadır settlement size and extent using geophysical survey including magnetometry and resistivity. Another important aim of the 2015 season will be to extend our investigations to the western slope of the mound, in the hope of integrating this area into the work we started at the west field.

As a part of this work, we intend to excavate

a step trench along the western slope and try to identify all the stratigraphic levels at this side of the mound. We expect the results which will be gathered from the step trench to contribute to the work that is being conducted at the western field, and will provide invaluable information about the extent of the settlement on the western side of the mound at different periods.

#### ARCHAEOZOOLOGICAL REMAINS

The goals of archaeozoological research at Çadır Höyük focus on documenting the use of animals in the various occupations of the mound and contextualizing changes in their use as the function and nature of the settlement shifted within the dynamic socio-political and ecological landscapes of the middle and late Holocene. In total, the faunal team at Çadır has recorded more than 10,000 specimens spanning the entire occupation of the mound from the Chalcolithic to the Byzantine period (Arbuckle 2009; Steadman et al. 2013). In this report, we focus on describing general results as of the 2014 season, emphasizing what we feel are important trends and targets for ongoing research. These include shifts in species composition through the Late Chalcolithic/Early Bronze Age, Middle and Late Bronze Age, Iron Age, and Byzantine occupations and documentation of specific finds including the presence of equids at Çadır and the identification of exotic, unusual, and wild taxa.

Faunal remains associated with Late Chalcolithic deposits have been recovered from trenches SES 1, SES 2, LSS 3-5 and include more than 2000 specimens (Table 2). In these deposits, sheep and goats represent approximately half of the specimens identified to the genus level followed by cattle and pigs in approximately equal quantities (ca. 13% each) (Table 3). Equids are present in small, but consistent, numbers as are a wide range of wild taxa including fox, cat, badger, dog, hedgehog, hare, and tortoise.

The Late Chalcolithic faunal assemblage at Çadır is rich and differs from other fourth millennium sites in central Anatolia in the surprisingly low frequency of cattle. Cattle often represent ca. 25-50% of the fauna from sites in the region including Çamlıbel Tarlası, Yarık-



kaya, Büyükkaya, Arslantepe VI, and Norşuntepe but are relatively rare in the Late Chalcolithic deposits at Çadır (Boessneck and von den Driesch 1976; von den Driesch and Pöllath 2004; Bartosiewicz 1998; Bartosiewicz and Gillis 2011). This could indicate that the animal economy at Çadır was significantly different from that of its neighbors, with herders focusing on smaller livestock (perhaps including a mobile component) in response to environmental, political, or historical conditions, or it could be related to the nature of Late Chalcolithic contexts which include several possibly non-residential structures.

The presence of equids in Chalcolithic deposits at Çadır is also significant. The earliest remains of a large equid (i.e., horse, *Equus ferus* or *E. caballus*) come from deposits dated to the fifth millennium Cal BC (Trench LSS 5 [L62-FCN2843]), but they have also been recovered from contexts dating to the fourth millennium (e.g., Trenches LSS 3 [L34-FCN5031], and SES 1 [L69-FCN9736]) (Arbuckle 2009). Horse remains from this period in Anatolia are rare, and it is currently unclear if they represent some of the earliest domesticates in SW Asia (perhaps imported from the Pontic-Caspian steppes) or remnants of local wild populations (Arbuckle 2013; Uerpmann 2001; Martin and Russell 2006). Although small equids (probably donkey, *Equus asinus*, but *E. hemionus* is also possible) have been recovered from LC deposits (Trenches LSS 9 [L29-FCN3064], LSS 10 [L6-FCN3216], and LSS 3 [L18-FCN4396]), the loci are not securely sealed, and the presence of donkeys in the fourth millennium cannot be confirmed. The earliest small equid remains from secure contexts derive from the Late Bronze Age.

Early Bronze Age faunal remains are currently poorly represented, with only 34 specimens analyzed from trenches LSS 9 and LSS 10. This small sample is similar to that evident in the Late Chalcolithic deposits, with sheep and goats well represented followed in abundance by pig and cattle which are very poorly represented, and 'other' taxa are well represented including a small carnivore, a canid, and hare. Future work will target newly recovered material from EBA contexts.

Material from the second millennium BCE is derived from the Step Trench as well as trenches USS 9 and 10. Due to the complex stratigraphy of the Step Trench, deposits from the second millennium representing both the Middle and Late Bronze Age are treated together in this report. A detailed analysis of the Middle and Late Bronze faunal remains is forthcoming.

The second millennium BCE faunal remains indicate a major increase in the abundance of cattle (33%) and pigs (18%) and a concomitant decline in sheep and goats (39%). Both large and small equids (presumably domestic horses and donkeys) are present while the frequency of 'other' mammalian taxa including fox, hare, and tortoise declines compared to the LC, although medium canidae (probably dogs) are well represented. The increase in cattle at Çadır in the Bronze Age may reflect its changing role in regional settlement hierarchies especially during the Hittite period when the settlement may have enjoyed high status.

One of the most interesting and unexpected finds from the 2013 season was the identification of a fragment of a large mammal tooth from ST 9 (L65-FCN9369) (Fig. 21). This fragment is ca. 50 mm in height and ca. 10 mm in width, and although it does not preserve the occlusal surface, two indentations in the enamel (lingual cingulum?) suggest that the base of the specimen (visible in Fig. 21) represents the neck, or base, of the crown of a large tooth. The enamel is 2.7 mm thick, and the dentine component of the specimen, which has been exposed to heat, is brown and black and with an iridescent 'cat's eye' texture. The fractures on the pre-

|                         | LC          | EBA       | MBA/<br>LBA | LBA        | IRON        | BYZ         | TOTAL        |
|-------------------------|-------------|-----------|-------------|------------|-------------|-------------|--------------|
| unidentified mammal     | 0           | 0         | 228         | 0          | 401         | 4           | 633          |
| very small mammal       | 56          | 1         | 4           | 3          | 35          | 2           | 101          |
| small mammal            | 25          | 0         | 12          | 0          | 52          | 2           | 91           |
| medium mammal           | 736         | 0         | 713         | 40         | 1372        | 346         | 3207         |
| large mammal            | 200         | 1         | 488         | 9          | 400         | 404         | 1502         |
| medium artiodactyl      | 67          | 0         | 23          | 1          | 55          | 8           | 154          |
| large artiodactyl       | 29          | 0         | 34          | 0          | 28          | 37          | 128          |
| ovis/capra/gazelle      | 0           | 0         | 0           | 0          | 3           | 0           | 3            |
| sheep/goat              | 299         | 11        | 170         | 31         | 614         | 114         | 1239         |
| sheep                   | 72          | 3         | 34          | 9          | 110         | 23          | 251          |
| goat                    | 58          | 4         | 21          | 10         | 120         | 14          | 227          |
| medium bovid/cervid     | 32          | 0         | 1           | 2          | 16          | 3           | 54           |
| cattle                  | 109         | 2         | 174         | 16         | 258         | 402         | 961          |
| cf. <i>Bos indicus</i>  | 0           | 0         | 0           | 0          | 0           | 1           | 1            |
| small cervid            | 4           | 0         | 0           | 0          | 1           | 0           | 5            |
| medium cervid           | 3           | 0         | 1           | 0          | 24          | 0           | 28           |
| large cervid            | 3           | 0         | 1           | 0          | 7           | 1           | 12           |
| pig                     | 134         | 4         | 113         | 7          | 196         | 111         | 565          |
| <i>Camelus</i>          | 0           | 0         | 0           | 0          | 0           | 1           | 1            |
| medium equid            | 3           | 1         | 4           | 0          | 16          | 7           | 31           |
| large equid             | 13          | 0         | 4           | 2          | 50          | 7           | 76           |
| equid sp.               | 12          | 0         | 2           | 0          | 20          | 4           | 38           |
| cf. <i>Hippopotamus</i> | 0           | 0         | 1           | 0          | 0           | 1           | 1            |
| small carnivore         | 6           | 1         | 0           | 0          | 0           | 0           | 7            |
| medium carnivore        | 10          | 0         | 0           | 4          | 1           | 0           | 15           |
| small felid (cat)       | 2           | 0         | 0           | 0          | 1           | 2           | 5            |
| large mustelid          | 0           | 0         | 0           | 0          | 1           | 0           | 1            |
| <i>Martes foina</i>     | 0           | 0         | 0           | 0          | 31          | 0           | 31           |
| <i>Mustela nivalis</i>  | 0           | 0         | 0           | 1          | 6           | 0           | 7            |
| <i>Meles</i>            | 1           | 0         | 0           | 0          | 0           | 0           | 1            |
| medium canid            | 9           | 0         | 31          | 4          | 17          | 4           | 65           |
| fox                     | 17          | 1         | 5           | 0          | 8           | 48          | 79           |
| hedgehog                | 3           | 0         | 0           | 0          | 1           | 1           | 5            |
| rodent                  | 0           | 0         | 2           | 0          | 20          | 0           | 22           |
| <i>Rattus</i>           | 0           | 0         | 0           | 0          | 1           | 0           | 1            |
| <i>Sciurus</i>          | 0           | 0         | 0           | 0          | 2           | 0           | 2            |
| hare                    | 54          | 5         | 5           | 2          | 14          | 4           | 84           |
| reptile                 | 1           | 0         | 0           | 0          | 1           | 0           | 2            |
| tortoise                | 70          | 0         | 2           | 37         | 268         | 1           | 378          |
| snake                   | 5           | 0         | 0           | 0          | 0           | 0           | 5            |
| amphibian               | 1           | 0         | 1           | 0          | 0           | 0           | 2            |
| fish                    | 2           | 0         | 0           | 0          | 0           | 0           | 2            |
| bird                    | 17          | 0         | 13          | 2          | 22          | 15          | 69           |
| <b>TOTAL</b>            | <b>2053</b> | <b>34</b> | <b>2087</b> | <b>180</b> | <b>4172</b> | <b>1567</b> | <b>10092</b> |

Table 2. Number of specimens identified to taxonomic and body size categories from Çadır Höyük. LC=Late Chalcolithic; EBA=Early Bronze Age; MBA/LBA=Middle and Late Bronze Age; LBA=Late Bronze Age; IRON=Iron Age; BYZ=Byzantine.

|            | LC    | EBA   | MBA/<br>LBA | LBA   | IRON  | BYZ   |
|------------|-------|-------|-------------|-------|-------|-------|
| Cattle     | 13.7  | 6.3   | 32.5        | 12.7  | 15.1  | 54.7  |
| Sheep/goat | 49.4  | 56.3  | 38.8        | 40.5  | 47.5  | 19.8  |
| Pig        | 13.3  | 12.5  | 17.7        | 5.6   | 10.4  | 13.8  |
| Equids     | 2.8   | 3.1   | 1.6         | 1.6   | 4.5   | 2.2   |
| Other taxa | 20.7  | 21.9  | 9.5         | 39.7  | 22.5  | 9.6   |
| Sum        | 100.0 | 100.0 | 100.0       | 100.0 | 100.0 | 100.0 |

Table 3. Frequencies of the major mammalian taxa at Çadır Höyük based on specimens identified to the family or genus level. Column headings are the same as in Table 2.



sumed coronal and apical ends of the specimen appear to be worn, suggesting that the specimen was likely broken in antiquity and was handled or otherwise became polished.

Although taxonomic identification has been difficult given its fragmented state, the size of the specimen is indicative of a very large herbivore. Although elephant remains have been identified from Anatolian and Syrian sites dating to the Bronze Age (Deniz et al. 1990; Caubet and Poplin 2010), this specimen could not be identified as a portion of an elephant molar (or tusk, which is composed almost entirely of dentine) but is instead more similar to the (lightly worn) molar of a large hippo (*Hippopotamus amphibius*) – although this identification is still tentative. Finding a fragment of a hippo tooth in central Anatolia would be surprising, although hippo incisor teeth have been recovered from Late Bronze Age contexts in Anatolia including the Uluburun shipwreck, indicating that they were regularly traded, probably via Egypt, and used in craft production (Rehak and Younger 1998).

A small sample of remains from trenches USS 9 and USS 10 has been tentatively phased to the Late Bronze Age. This small sample is likely not representative of the larger LBA economy but includes high frequencies of sheep, goat, and tortoise remains. Cattle, pigs, dog, and large equid are also present in smaller quantities.

A large sample of fauna representing the Iron Age derives from trench USS 4. The main domesticates are represented in proportions similar to that in the LC, with sheep and goats dominating NISP counts (48%), followed by cattle (15%) and pigs (10%). The massive decrease in the frequency of cattle from the second millennium is a distinctive feature of the Iron Age fauna at Çadır. In addition, equids are well represented in trench USS 4 (NISP=86), as are the remains of tortoise and a variety of small mammals including carnivores and rodents. Of the carnivores, common taxa such as dog (*Canis sp. cf. domesticus*), fox (*Vulpes vulpes*), and cat (*Felis sp.*) have been identified, as have marten (*Mustela foina*) and weasel (*Mustela nivalis*). The last two have been identified primarily from Iron Age contexts, suggesting a contextually specific use for these small, fur bearing mustelids.

Faunal remains from trenches SMT 4, 8, 14-15, NT 2-3, 7-8, and USS 3 represent the Byzantine occupation of Çadır so far analyzed. These assemblages are dominated by cattle (55%), with smaller amounts of sheep and goat (20%), and pigs (14%). In addition to taurine cattle (*Bos taurus*) the identification of several thoracic vertebrae with bifid spines suggests that zebu (*Bos indicus*) may also have been utilized. Equids are present in small numbers as are dog and cat and domestic fowl. In 2013 the first specimen representing camel (*Camelus sp.*) was identified – a fragment of a left mandible from an aged individual (from Trench NT 3 [F2-FCN9222]). Overall the Byzantine faunal assemblage is remarkably homogenous, and wild taxa are rare.



Fig. 21. Large mammal tooth fragment from ST 9 (FCN9369; ÇD5957). Possibly represents a hippo (*Hippopotamus amphibius*) molar.

## ARCHAEOBOTANICAL REMAINS

The goal of the archaeobotanical study at Çadır Höyük is to examine how plant use on the north central Anatolian plateau changed over time from the Middle Chalcolithic through the Byzantine and how it contributed to the social, economic, and political trends of the periods. The intensive archaeobotany sampling strategy for the 2013 and 2014 seasons remained largely the same as previous years (see Steadman et al. 2013). When possible, 20 liter samples were taken from each locus with a particular focus on pit, fill, hearth/oven, and floor features.

Samples were floated at the excavation house using a modified Siraf machine based on the design by Mark Nesbit and Delwen Samuel (Nesbitt and Samuel 1989). An estimated 200 samples from the Late Chalcolithic, Early Bronze Age, Hittite, Iron Age, and Byzantine periods were collected during the 2013 and 2014 seasons, and so far 147 samples have been floated, 84 from the 2013 season and 63 from the 2014 season.

A visual scan of the samples shows that the preservation of the Çadır material is adequate to identify seeds to genus and species level. Material recovered from trench USS 4 from the Iron Age and Byzantine terrace trenches (NT 3, NTN 7, and NTN 8) have the highest charcoal density. The most abundant type of charcoal in the samples in every trench is wood charcoal. Since it is no longer possible to export archaeobotanical samples out of Turkey, only four samples were thoroughly examined at the end of the 2014 season. These samples date to the Late Chalcolithic and come from SES 1, excavated in 2013 from a floor (F85/L91), a hearth (F118/L126), a pit with clay ovoids (L117), and from a fill layer (F110/L120). However, analysis is continuing on all the samples recovered from SES 1 during 2013 and 2014. Based on these samples, the most ubiquitous economic species at Çadır during the Late Chalcolithic are *Triticum dicoccum* L. and *Hordeum* spp., *Linum usitatissimum* L., *Lens culinaris* Medik., and *Vicia ervilia* (L.) Willd. appear in two of the four samples. The most common weed species are *Galium/Asperula* spp., *Melilotus* spp., and *Thymelaea* spp. This assemblage is consistent with what is usually found in a Late Chalcolithic archaeobotanical assemblage.

## PHYSICAL ANTHROPOLOGY

The human bones described below were excavated in the 2012 to 2014 field seasons. In total four individuals are reported on here: three of the burials were found in the Late Chalcolithic levels of the mound, while one skeleton was uncovered from the Byzantine levels. Since the total skeletal collection is still small, the data are given here per individual. After excavation, all human remains were cleaned dry by brushing them gently with a soft brush. After the removal of dirt and soil the bones were put in anatomical position. Examination included for each individual determination of biological sex,<sup>3</sup> age at death, stature, and dental and bone pathology (macro observations). All possible measurements were taken on complete bones and recorded as mm for comparative analyses when more material will be available through excavation.

<sup>3</sup> Only for adults since there is no trustworthy method to determine the sex of infants and juveniles.

## Late Chalcolithic Burials

In this category three burials were recovered: an adult lying on pottery sherds, and two infants each buried in a jar. The infants were neonatals of approximately the same age; the adult was middle-aged.

### *Infants*

Infant Burial 1 (Trench SES 1 [L103-FCN11751]) was discovered resting on the base of a medium-sized storage jar in the 2012 season. It was an almost complete infant skeleton with good bone preservation. Cranial bones were fragmentary, mandible and maxilla were present. The age of the infant was ca. 1.5 months, according to the bone size (Schaeffer, Black, and Scheuer 2009). No pathology was observed. Infant Burial 2 (Trench USS 10 [F44-FCN13609]) was excavated in 2013 from a small jar. The bones were well preserved and most of them were present. In addition to fragmentary cranial bones, the mandible and maxilla were also preserved. Pathology was absent. Using Ubelaker's dental eruption chart, the age of this infant was estimated as a newborn (+/- 2 months) (Ubelaker 1978).

### *Adult*

This adult burial was recovered in 2012 from Trench SES 1 (L83-FCN11308); it was resting against and possibly partially covered by a mudbrick wall dating to the Late Chalcolithic period. The badly preserved fragmentary bones were lying on the sherds of a broken jar and were also partially covered by pieces of the same jar. A few of the bones were still articulated in situ, permitting us to determine that the deceased had been buried in a flexed position. As almost all bones were incomplete, no measurements could be taken. The outer surface of some bones was only partially preserved, while the upper leg bones (femur) exhibited postmortem cut marks. The few remaining cranial bones were fragmentary. Next to isolated teeth a fragment of the maxilla held two teeth. The adult's biological sex could not be examined, because bones allowing establishment of the secondary sex characteristics were missing.<sup>4</sup> Age at death was assessed by examination of the wear pattern of molar teeth which were from a middle-aged individual between 25-35 years (after Brothwell 1981: Fig. 3.9). Age related changes on the bones also indicated that this was a middle-aged or older individual. Regarding the dental condition, twenty-seven teeth were inspected; five were missing postmortem. The upper left premolars and molars exhibited a slight degree of calculus formation, while upper and lower front teeth had a medium degree of calculus formation (after Brothwell 1981). Slight resorption of the alveolar bone at tooth roots was recorded on the level of the upper left molars; six teeth were affected by tooth decay.

## Byzantine period burial

This burial of a well-preserved adult (Trench ST 3 [F9-FCN13546]) was discovered during the 2013 excavation season and was resting at the base of the second millennium ar-

<sup>4</sup> Except a piece of an orbital roof which pointed to an indifferent sex.

chitecture in the ST 3 trench (Fig. 22). The burial, however, was clearly later and the partial ceramic piece discovered resting on the burial suggests it dates to the Byzantine period. At present the Byzantine cemetery at Çadır Höyük has not been located. The burial of this adult in a context that is apparently outside the normal burial grounds may be related to the unusual physical characteristics of the individual described below.



Fig. 22: Photo of a Byzantine female burial from Trench ST 3 (F9) (dated by the broken sherd resting on her pelvis) aged between 28-37 at time of death.

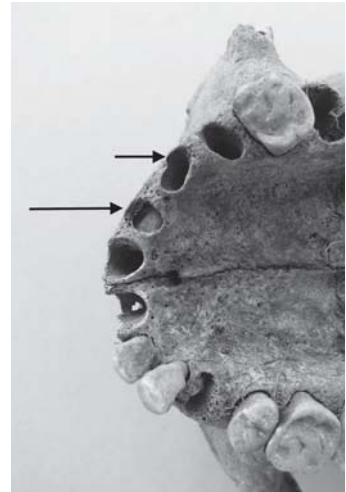


Fig. 23. Photo of jaw belonging to adult burial dating to the Byzantine period from Trench ST 3. Note that the upper left canine was still in the jaw and had grown laterally through the alveolus of the lateral incisor.

The skeleton was almost complete except for a few missing bones such as atlas and axis, two thoracic vertebrae, both patellas, some dental remains, and a few hand and foot bones. The bones were rather delicate, and some of the long bones were exceptionally small in size. Biological sex was determined according to the morphological characteristics of the pelvis and the skull. Most sex characteristics on the cranium and the mandible were characterized as hyperfeminine, the pelvic characteristics as feminine or hyperfeminine (WEA 1980).

Age at death was assessed by observing the molar wear pattern as follows: a) between 25-35 years (after Brothwell 1981: Fig. 3.9); b) between 30-36 (after Miles 1963: Fig. 10). The complex method of Acsadi and Nemeskeri (1970)<sup>5</sup> was also applied to calculate the age, which resulted in the assessment that this woman died between the age of 28 and 37 years. Therefore the upper extremities of the humerus and femur were sawn in two halves by a fine cut handsaw in order to obtain a longitudinal section and the loss of cancellous bone in these heads examined.

<sup>5</sup> The method includes determination of the pubic symphyseal changes, cranial suture closure, and loss of cancellous bone in the heads of the femur and humerus.

The following present non-metric traits and pathologies were recorded: a supra-orbital foramen on both orbital roofs, a septal aperture in the distal parts of both humeri, a rhomboid fossa in the sternal end of the right clavicle. Surprisingly her leg bones are relatively shorter than her arm bones. The stature estimation according to her arm length is between 150.7 cm (humerus), 151.6 cm (radius), and 154.2 cm (ulna). However, according to the length of her leg bones the estimated stature is 142.03 (femur) (Trotter and Gleser 1952: 58). She may have had a serious growth problem. This anomaly needs further investigation. The epiphyseal line is partly visible by the naked eye in the humerus proximal, ulna and radius distal, femur proximal, tibia proximal, and fibula distal parts.

Regarding dental condition, twenty-two teeth were counted. There were twelve teeth in the upper jaw. In the place of the tooth sockets of the first left premolar and canine there was one large misshapen tooth socket (dental alveolus). The upper left canine was still in the jaw and had grown laterally through the alveolus of the lateral incisor (Fig. 23). Upper third molar teeth were missing congenitally. The number of inspected teeth in the lower jaw was 10. The lower third molars were fully erupted. No caries was noticed, but a slight to medium degree of calculus formation was present on the front teeth.



Fig. 24. a: Baked clay animal figurine found in Omphalos Building in Trench LSS 3;  
b: Ivory object depicting a flying bird recovered from Trench ST 7.

## CONCLUSION

The 2013 and 2014 seasons involved the largest teams yet fielded at Çadır Höyük and the corresponding data retrieved are even more substantial for each of the periods investigated. We have answered many of our questions, especially regarding the Late Chalcolithic and Byzantine, while simultaneously we have generated new questions to be answered for all the periods represented at the site. We are especially pleased to finally have a significant exposure of the second millennium BCE occupation at Çadır, something lacking from previous seasons. We will approach the upcoming field seasons with our new questions resting at the forefront of our excavation and research strategies, and look forward to reporting on our results in this venue in the near future.

## APPENDIX: CERAMIC DESCRIPTIONS

“Ware” refers to the clay color and constitution after firing. This is particularly relevant with regard to “micaceous ware” references, the apparent clay source used by the Çadırans that contained a generous sprinkling of mica in its make-up. In referring to grit temper the following sizes are used: fine (< 0 mm), small (1 mm), medium (2-3 mm), large (4-5 mm), and very large (5 mm <).

Parenthetical information: ÇH04 refers to the year excavated (i.e. 2004); the four or five digit number refers to the Field Catalog Number (FCN) that is the unique, consecutive, number applied to each artifact or bag of artifacts recovered; the letters/number combination designates trench; the F/L number refers to the feature or locus within that trench from which the ceramic was excavated.

**Late Bronze Age Pottery**

- Fig. 11a. Bowl (ÇH14; 15110; USS 4; L279): Uniform orange-brown ware. Ware is micaceous; limited small white grit temper, core orange-brown. Fine ware, wheelmade.
- Fig. 11b. Bowl (ÇH14; 15110; USS 4; L279): Uniform gray-brown ware, over-fired. Limited small white grit temper, core half-and-half. Medium ware, possibly coil-made.
- Fig. 11c. Jar (ÇH14; 15511; USS 4; L290): Uniform brown ware, burnished below exterior rim. Limited small white grit temper, core orange. Medium to fine ware, with rim wheelmade.
- Fig. 11d. Holemouth jar (ÇH14; 15142; USS 4; L279): Uniform brown-orange ware, with yellow stain (scorching?) on each surface. Limited small white grit temper, core sandwich (light brown in center). Medium ware, wheelmade.
- Fig. 11e. Platter/baking tray (ÇH14; 14390; USS 4; L281): Red-black exterior, black interior. Ware is micaceous; abundant small, medium, and large white and grey grits, core sandwich (brown in center). Probably coil-made; impressed or incised pattern on concave lip. Found in Early Iron Age context, probably reused.
- Fig. 11f. Holemouth jar (ÇH14; 15128; USS 4; L279): Light orange exterior, smoothed, tan interior. Abundant small white grit temper, core orange. Medium ware, probably coil-made.
- Fig. 11g. Wide-mouthed jar, or deep bowl (ÇH14; 15128; USS 4; L279): Uniform orange ware, burnished on both surfaces. Some medium and small white grit temper, core orange-pink. Medium ware, coil-made.
- Fig. 11h. Holemouth jar (ÇH14; 15128; USS 4; L279): Uniform brown ware, smoothed on exterior. Ware is micaceous; some medium and small white grit temper, core brown. Medium ware, coil-made.

**Iron Age Platters/Trays**

- Fig. 12a. Platter/tray (ÇH14; 14215; USS 4; L273): Black-brown exterior with burnish (except base), brown interior with light burnish. Chaff on exterior and interior, abundant small, medium, and large grit temper, core black. Base is coarse and unsmoothed, made separately from a slab.
- Fig. 12b. Platter/tray (ÇH14; 14215; USS 4; L273): Black exterior, smoothed (except base), black interior with light burnish. Ware is micaceous; chaff on interior surface, abundant small, medium, and large white and grey grit temper, core black.
- Fig. 12c. Platter/tray (ÇH14; 14353; USS 4; L267): Brown-black exterior with burnish (except base), black interior with burnish. Chaff on exterior, abundant small, medium, and large white and grey temper, core half and half. Vessel was constructed with a slab base, with side walls perhaps attached as a coil.



Fig. 12d. Platter/tray (ÇH14; 14801; USS 4; L282): Dark brown exterior, smoothed (except base), red-brown interior with burnish. Chaff on interior surface, abundant small, medium, and large white grit, chaff, and shell, core brown.

Fig. 12e. Platter/tray (ÇH14; 15120; USS 4; L285): Black-brown exterior, to red at base, left unsmoothed, black interior with light burnish. Chaff on exterior surface, abundant medium and large white and grey grit, core half and half.

### Iron Age Pottery

Fig. 13a. Bowl (ÇH14; 14213; USS 4; F197): Uniform dark brown slip and burnish, some chaff on surfaces. Some small and medium grit temper, core brown-black. Medium-fine, handmade.

Fig. 13b. Cup (ÇH14; 13249; USS 4; L264): Uniform pink-orange ware, left unsmoothed. No visible temper, core orange. Medium ware, handmade.

Fig. 13c. Bowl (ÇH14; 13772; USS 4; L268): Uniform orange-brown ware, to black at rim. Ware is micaceous; some medium and abundant small white and grey grit temper, core orange-brown. Medium ware, handmade.

Fig. 13d. Shallow bowl (ÇH14; 13772; USS 4; L268): Uniform buff ware, with light burnish. Interior retains diagonal burnishing impressions, while exterior is rough. Ware is micaceous; limited grog and medium grey grit temper, core brown. Medium ware, coil-made.

Fig. 13e. Bowl (ÇH14; 13772; USS 4; L268): Uniform light orange-brown ware. Ware is micaceous; some medium and small white and grey grit temper, core sandwich (grey at center). Coarse, possibly wheel-finished.

Fig. 13f. Bowl (ÇH 14; 13397; USS 4; L267): Brown-black exterior, burnished; black burnished interior. Incised line just below interior rim. Some medium and large grey grit temper and chaff, core black. Medium ware, handmade, hard-fired.

Fig. 13g. Bowl (ÇH14; 14213; USS 4; F197): Uniform red slip and burnish; chaff on exterior. Some medium white and grey grit temper, core light orange. Medium to gritty ware, handmade.

Fig. 13h. Shallow bowl (ÇH14; 13772; USS 4; L268): Uniform brown-red ware, surfaces smoothed. Limited medium grey grit temper, core brown. Medium ware, handmade.

Fig. 13i. Bowl (ÇH14; 14379; USS 4; L280): Uniform red-orange ware, smoothed on interior, ridged on exterior. Some small grey grit and pebble temper, core orange-brown. Medium ware, coil-made.

Fig. 13j. Deep bowl or jar (ÇH14; 15539; USS 4; L295): Uniform but ephemeral red slip and burnish. Abundant small and medium white grit and chaff temper, core light brown. Medium ware, handmade.

Fig. 13k. Deep bowl with knob/ledge handle (ÇH14; 15115; USS 4; L284): Uniform brown ware, burnished, with heavier burnish on exterior. Ware is micaceous; some small, medium, and large white grit and chaff temper, core brown. Medium ware, handmade.

Fig. 13l. Jug (ÇH14; 13397; USS 4; L267): Red slip on exterior, burnished and onto interior rim; orange interior, burnished. Ware is micaceous; limited white grit temper and chaff, core sandwich: orange to dark grey. Fine ware, handmade, low-fired.

Fig. 13m. Jar (ÇH14; 13778; USS 4; L266): Brown exterior, to black at rim, lightly-burnished; brown-orange interior, smoothed and lightly burnished. Some small white and grey grit temper and chaff, core brown. Coarse ware, handmade.

Fig. 13n. Holemouth jar (ÇH14; 13772; USS 4; L268): Uniform orange-brown ware. Ware is micaceous; some medium and large white and gray grit temper, core brown. Coarse ware, coil-made but wheel-finished.

- Fig. 13o. Holemouth jar or deep bowl (diameter over 40 cm) (ÇH14; 13772; USS 4; L268): Uniform light orange ware. Limited fine white grit temper, core orange. Medium to fine ware, coil-made.
- Fig. 13p. Holemouth jar (ÇH14; 13772; USS 4; L268): Light brown exterior, dark brown interior, with ephemeral orange-brown slip or self-slipped surface. Finger marks and folds on exterior. Ware is micaceous; abundant small and medium white and gray grit temper, core brown. Coarse ware, coil-made.
- Fig. 13q. Jar (ÇH14; 14239; USS 4; L267): Uniform brown-black ware, burnished. Ware is micaceous; some small, medium, and large white and grey grit temper and chaff, core black. Coarse ware, handmade.

## REFERENCES

- Acsadi, G., and J. Nemeskeri, 1970 — History of human life span and mortality. Hungarian Academic Society, Budapest.
- Arbuckle, B.S., 2013 — Zooarchaeology at Acemhöyük. *Anadolu/Anatolia* 39: 55-68.
- Arbuckle, B.S., 2009 — Chalcolithic Caprines, Dark Age Dairy and Byzantine Beef. *Anatolica* 35: 179-224.
- Bartosiewicz, L., and R. Gillis, 2011 — Preliminary Report of the Animal Remains from Çamlıbel Tarlası, Central Anatolia. In: A. Schachner (ed.), *Die Ausgrabungen in Boğazköy-Hattusas 2010*, *Archäologischer Anzeiger* Vol 1: 76-79.
- Bartosiewicz, L., 1998 — Interim report on the Bronze Age animal bones from Arslantepe (Malatya, Anatolia). In: H. Buitenhuis, L. Bartosiewicz and A.M. Choyke (eds.) *Archaeozoology of the Near East III*, 221-232. Groningen: ARC Publications No. 18.
- Boessneck, J., and A. von den Driesch, 1976 — Die Wildfauna der Altinova in vorgeschichtlicher Zeit, wie sie die Tierknochenfunde vom Norşuntepe und anderen Siedlungshügeln erschliessen. *Keban Projesi 1972 Çalışmalarından Ayırılım*: 91-100.
- Brothwell, D.R., 1981 — Digging up bones (3<sup>rd</sup> edition). Oxford University Press/British Museum (Natural History), Oxford.
- Caneva, I., and Sevin, V. (eds.), 2004 — Mersin-Yumuktepe: A Reappraisal. Lecce: Dipartimento di Beni Culturali Università degli Studi.
- Caubet, A., and F. Poplin, 2010 — Réflexions sur la question de l'éléphant syrien. *Studia Chaburensia* 1:1-9.
- Deniz, E., K. Sunuroğlu, O. Canpolar, and M. Akpoyraz, 1990 — Acemhöyük kazılarında çıkan ve türü tükenmekte olan bir hint fili (*Elephas maxima*) dişi üzerinde arkeobiyolojik-arkeometrik etüdler. *Arkeometri Sonuçları Toplantısı* VI: 13-20.
- Efe, T. (ed.), 2001 — The Salvage Excavations at Orman Fidanlığı. A Chalcolithic Site in Inland Northwestern Anatolia. Istanbul: Arkeoloji ve Sanat Yayınları.
- Genz, H., 2004 — Büyükkaya 1. Die Keramik der Eisenzeit. Funde aus dem Grabungskampagnen 1993 bis 1998. Mainz-am-Rhein: von Zabern.
- Gorny, R.L., 2006 — The 2002-2005 Excavation Seasons at Çadır Höyük: The Second Millennium Settlements. *Anatolica* 32: 29-54.
- Gorny, R.L., G. McMahon, S. Paley, and S. Steadman, 2000 — The 1999 Alişar Regional Project Season. *Anatolica* 26: 153-171.
- Gorny, R.L., G. McMahon, S. Paley, and S. Steadman, 2002 — The 2000 and 2001 Seasons at Çadır Höyük in Central Turkey. *Anatolica* 28: 109-136.
- Gorny, R.L., G. McMahon, S. Paley, S. Steadman, and B. Verhaaren, 1999 — The 1998 Alişar Regional Project Season. *Anatolica* 25: 149-183.
- Miles, A.E.W., 1963 — The dentition in the assessment of individual age in skeletal material, pp.

- 191-209 in D.R. Brothwell (ed.) *Dental Anthropology*. Oxford: Pergamon.
- Nesbitt, M., and D. Samuel, 1989 — The Recovery of Ancient Botanical Remains from Near Eastern Excavations: A Practical Guide. Ankara: British Institute of Archaeology.
- Nossov, K., 2008 — Hittite Fortifications c. 1650-700 BC. Westminster, MD: Osprey.
- Rehak, P., and J.G. Younger, 1998 — International styles in ivory carving in the Bronze Age. In: E.H. Cline and D. Harris-Cline (eds.), *The Aegean and the Orient in the Second Millennium. Proceedings of the 50<sup>th</sup> Anniversary Symposium, Cincinnati, 18-20 April 1997*, 229-256. Austin: University of Texas Press.
- Rice, P., 2005 — *Pottery Analysis: A Source Book*. Chicago: Chicago University Press.
- Ross, J., 2010 — Çadır Höyük: The Upper South Slope 2006-2009. *Anatolica* 36: 67-87.
- Sagona, A.G., 2000 — Excavations at Sos Höyük, 1998 to 2000: fifth preliminary report. *Ancient Near Eastern Studies* 37: 56-127.
- Sagona, A.G., 2003 — The upper levels at Sos Höyük, Erzurum: A reinterpretation of the 1987 Campaign. *Anatolia Antiqua* 11: 101-9.
- Schaeffer, M., S. Black, and L. Scheuer, 2009 — *Juvenile Osteology: a laboratory and field manual*. Amsterdam/Boston: Academic Press Elsevier.
- Steadman, S.R., G. McMahon, and J.C. Ross, 2007 — The Late Chalcolithic at Çadır Höyük in Central Anatolia. *Journal of Field Archaeology* 32.4: 385-406.
- Steadman, S.R., G. McMahon, J.C. Ross, M. Cassis, J.D. Geyer, B. Arbuckle, and M. Von Baeyer, 2013 — The 2009 and 2012 Seasons of Excavation at Çadır Höyük on the Anatolian North Central Plateau. *Anatolica* 39: 113-167.
- Steadman, S.R., J.C. Ross, G. McMahon, and R.L. Gorny, 2008 — Excavations on the North-Central Plateau: The Chalcolithic and Early Bronze Age Occupation at Çadır Höyük. *Anatolian Studies* 58: 47-86.
- Trotter, M., and G.C. Gleser, 1952 — Estimation of stature from long bones of American whites and negroes. *American Journal of Physical Anthropology* 10: 463-514.
- Trotter, M., and G.C. Gleser, 1958 — A re-evaluation of estimation of stature based on measurements of stature taken during life and of long bones after death. *American Journal of Physical Anthropology* 16: 79-123.
- Ubelaker, D.H., 1978 — *Human skeletal remains. Excavation, analysis, interpretation*. Washington: Taraxacum.
- Uerpmann, H.-P., 2001 — Remarks on faunal remains from the Chalcolithic sites "Orman Fidanlığı" and "Kes Kaya" near Eskişehir in North-Western Anatolia. In: T. Efe (ed.), *The salvage excavations at Orman Fidanlığı: A Chalcolithic site in inland northwestern Anatolia*, 187-210. Istanbul: TASK Vakfı Yayınları.
- von den Driesch, A. and J. Boessneck, 1981 — Reste von Haus- und Jagdtieren aus der Unterstadt von Boğazköy-Hattuša: Grabungen 1958-1977. Berlin: Mann.
- von den Driesch, A., and N. Pöllath, 2004 — Vor- und frühgeschichtliche Nutztierhaltung und Jagd auf Büyükkaya in Boğazköy-Hattuša, Zentralanatolien. Mainz: Boğazköy-Berichte 7.
- von der Osten, H.H., 1937 — *The Alishar Höyük: Seasons of 1930-32, Oriental Institute Publications* 28, Parts 1-3. Chicago: University of Chicago.
- Workshop of European Anthropologists (WEA), 1980 — Recommendations for age and sex diagnosis of skeletons. *Journal of Human Evolution* 9, 390-404.

## EXCAVATIONS AT ZIYARET TEPE, DIYARBAKIR PROVINCE, TURKEY, 2011-2014 SEASONS

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### **Abstract**

*This article presents the results of excavations at Ziyaret Tepe, the Late Assyrian city of Tuşhan in the Diyarbakır Province of southeastern Turkey during the summers of 2011-2013, as well as from a study season in 2014. Excavation in nine operations is briefly summarized, and the preliminary results of zooarchaeological and archaeobotanical studies in three operations are presented. Major public buildings of the Late Assyrian period (c. 882-611 BC) were recovered in Operation AN (palace), Operation W (administrative building), and Operation Y (city fortification), while an exposure of domestic architecture was revealed in Operation K. Also of importance from these field seasons was the documentation of a Late Roman, or Late Antique, occupation in Operations T and U. Zooarchaeological evidence from earlier excavations in Operation K reveal the subsistence practices of commoners during the Late Assyrian period. Likewise, the use of plants for human food and animal fodder are discussed for the Late Assyrian (Operation Q, the city gate excavated earlier) and the Late Antique (Operation T, domestic housing) periods. These combined reports outline the importance of animal husbandry, as well as agricultural production of grain, as key economic aspects of the Late Assyrian settlement, and complement existing cuneiform documentation.*

### INTRODUCTION

This paper represents the final installment in our preliminary report series in *Anatolica* covering the excavations at Ziyaret Tepe, the Late Assyrian city of Tuşhan, in the Diyarbakır Province of southeastern Turkey. The 2011, 2012, and 2013 summer excavation seasons are discussed, as are some results from an additional study season undertaken in June-August 2014 to complete the recording of small finds, pottery, animal and human bones, archaeobotanical remains, and microdebris samples stored in our expedition depots.\* For a more detailed de-

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\* Prof. Timothy Matney served as the director of the project. Our senior staff included: Dr. John MacGinnis of Cambridge University, Dr. Dirk Wicke of the University of Mainz, and Prof. Dr. Kemalettin Köroğlu of Marmara University. We would like to acknowledge the kind help of the directors of the regional Diyarbakır Archaeological Museum: Nevin Soyukaya (2011-2012), Mehmet Akif Bilici (2013), and Mehmet Eneze (2014). Likewise, we were assisted by a number of able and helpful government representatives: Ahmet Durman and Nuray Çırak (2011), Murat Aktay (2012), Esmâ Bedirhanoglu (2013), and Leyla Ay (2014). Our thanks go out to all their efforts and hard work on our behalf.

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scription of the site's topography, its historical significance, and the results of previous seasons, the reader is directed to earlier reports in this journal (Matney 1998; Matney and Somers 1999; Matney and Bauer 2000; Matney et al. 2002; 2003; Matney and Rainville 2005; Matney et al. 2007; 2009; 2011). A number of important refinements and additions can now be made as result of our most recent excavations and analyses and these early reports should be understood as preliminary in nature.

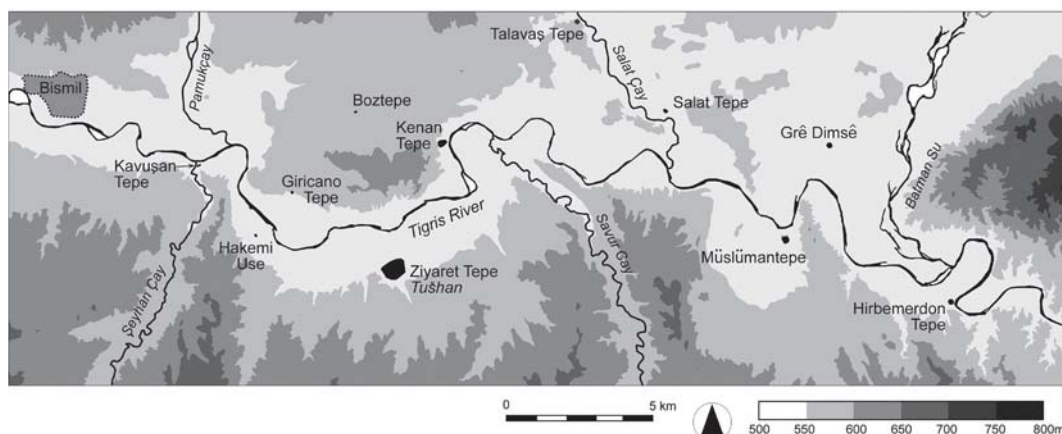


Fig. 1. Location of Ziyaret Tepe in the upper Tigris River valley of southeastern Turkey.

### The Site of Ziyaret Tepe

Ziyaret Tepe sits within a fertile area of the upper Tigris River alluvial floodplain, approximately 20km west of its confluence with the Batman Su and just east of the modern city of Bismil (Fig. 1). The site falls within the impact area of the large Ilisu hydroelectric dam soon to be completed downstream and our salvage work in advance of the filling of the Ilisu Lake has been on-going annually since 1997. The broad project goals established during the first field season continue to guide our research project: (1) to study city planning and urban functioning at a major Assyrian city along the imperial frontier; (2) to document the entire occupational sequence at Ziyaret Tepe and within the upper Tigris River valley; (3) to explore the relationship between the Assyrian and indigenous Anatolian populations; and (4) to study the impact of urbanization on the regional Late Bronze and Iron Age ecology and environment. In the operation reports that follow, we situate the specific field objectives of the excavation seasons within this broader research agenda.

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Finally, we would like to acknowledge the long-lasting and important support of the editor of *Anatolica*, Jacob Roodenberg, who has gracefully allowed us access to this vital forum for presenting our work.

The site of Ziyaret Tepe can be divided into two main morphological units: a high citadel mound with an area of approximately 3 hectares rising approximately 22m above the surrounding agricultural fields and an adjacent lower town, occupying approximately 29 hectares to the east, south, and west of the citadel mound (Fig. 2). During the 2011-2013 seasons, major excavations were undertaken on the high mound, in Operation A/N, a monumental mudbrick building which we have nicknamed the Bronze Palace. Eight excavation areas in the lower town were also excavated, including five new excavation areas in the southwestern lower town in Operations T, U, V, Y, and Z and the expansion of previous excavation areas in Operations K (2013), M (2012) and G/R. This latter expansion was excavated as Operation W. In addition to excavation, we also undertook three additional field seasons of subsurface geophysical prospection in the lower town using electrical resistivity survey; the geophysical prospection is not covered in this report.

Ziyaret Tepe had a long occupational history spanning the Early Bronze through Middle Iron Ages, with periodic later occupational levels in the Late Iron/Hellenistic, Late Roman, Medieval, and Ottoman periods (Fig. 3). The zenith of occupation at Ziyaret Tepe was as an urban center in the 9<sup>th</sup> through 7<sup>th</sup> centuries BC during the Late Assyrian period. Historical inscriptions explain that the city of Tušhan was re-founded following a hiatus brought about by the Middle Assyrian political collapse of the mid-11<sup>th</sup> century BC. In 882 BC, King Ashurnasirpal II claimed to have rebuilt the city which was continuously occupied by the Assyrians until its abandonment in 611 BC after the collapse of the imperial heartland (Grayson 1991; Roaf in Matney et al. 2002: 49-51). These Assyrian historical accounts correlate closely with the architectural history and stratigraphy of the excavated remains at Ziyaret Tepe.

#### EXCAVATIONS IN OPERATION A/N: THE “BRONZE PALACE” (D. WICKE)

Since its initial discovery in 2000, our primary interest in Operation A/N has been to untangle the complex ground plan and chronology of an Assyrian palace which we refer to as the “Bronze Palace” (Matney et al. 2011: 69-72). The principal objectives in Operation A/N in the 2011-13 seasons were to amend and expand the architectural plan of the palace to the north where Assyrian walls appeared immediately beneath the surface and to investigate earlier stratigraphic levels first seen in the previously-excavated ‘Deep Sounding’ excavated in Room 9. It is now clear that we have three separate Assyrian building phases in the Bronze Palace, here labeled I, II, and III. Phase I corresponds to the uppermost phase, probably 7<sup>th</sup> century BC. Phase II refers to the main building phase of the mid-8<sup>th</sup> century BC date, which was destroyed in a heavy conflagration. Phase III shows up immediately beneath phase II-walls/foundation and might, in fact, have been the 9<sup>th</sup> century building mentioned by Ashurnasirpal II (Grayson 1991: 202), although this needs confirmation by continued analysis of the small finds. In 2012, we discovered possible evidence for an “intermediate” stratum of possible Hellenistic to Late Antique date, which consists of a floor of reused baked bricks associated with a trefoil-mouthed jug (ZT 41280) and a pebble-surface in grid square N1010E1170 and possibly a pisé wall in N1010E1190. In 2013 more evidence for a pre-Late Assyrian level became clear.



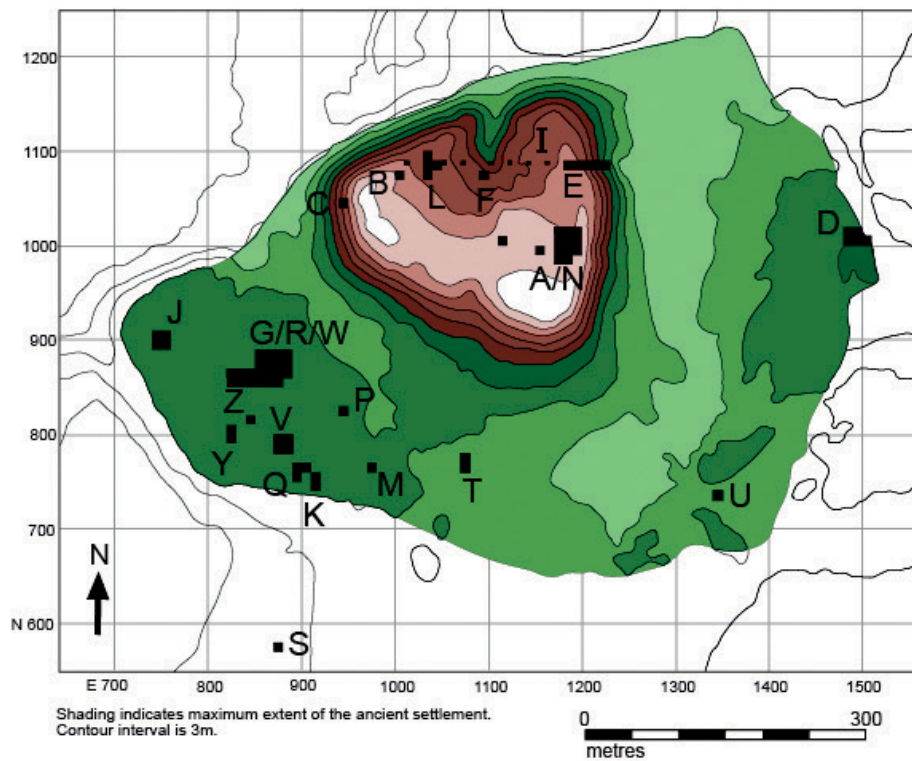


Fig. 2. Topographic plan of Ziyaret Tepe showing the areas of excavations, 1997-2014.

| PERIOD                  | A/N | B | C      | D      | E    | G/R/W  | J | K      | L  | M      | Q      | T        | U        | V | Y      | Z      |                   |                                   |
|-------------------------|-----|---|--------|--------|------|--------|---|--------|----|--------|--------|----------|----------|---|--------|--------|-------------------|-----------------------------------|
| Modern                  | N0  | ↑ |        |        |      |        |   |        |    |        |        |          |          |   |        |        |                   | 18th-19th C ?                     |
| Ottoman                 | N1  | B |        |        |      |        |   |        | L1 |        |        |          |          |   |        |        |                   |                                   |
| Late Medieval           | N2  | ↓ |        |        |      |        |   |        | L2 |        |        |          |          |   | Y1     |        |                   | late 13th -<br>early 15th C       |
|                         |     |   |        |        |      |        |   |        |    |        |        |          |          |   |        |        | <i>unoccupied</i> |                                   |
| Late Roman/Late Antique |     |   |        |        |      |        | J |        |    |        |        | T1<br>T2 | U1<br>U2 |   |        |        |                   | late 4th - mid-6thC AD            |
|                         |     |   |        |        |      |        |   |        |    |        |        |          |          |   |        |        | <i>unoccupied</i> |                                   |
| Late Iron/Hellenistic   | N3  |   |        |        |      |        |   |        | L3 |        |        |          |          |   |        |        |                   | 3rdC BCE - 1stC AD                |
| Late Assyrian           | N4  |   |        | ↑<br>↓ |      | ↑<br>↓ |   | ↑<br>↓ | L4 | ↑<br>↓ | ↑<br>↓ |          | U3<br>U4 | V | ↑<br>↓ | ↑<br>↓ |                   | 611 BCE<br><i>urban<br/>phase</i> |
| Early Iron Age          | N5  |   |        |        |      |        |   |        | L5 |        |        |          |          |   |        |        |                   | 882 BCE                           |
| Middle Assyrian         |     |   |        |        | kiln |        |   |        | L6 |        |        |          |          |   |        |        |                   | 1050 BCE                          |
| Mitanni                 |     |   |        |        | E    |        |   |        |    |        |        |          |          |   |        |        |                   | 1300 BCE                          |
| Brightly Burnt Building |     |   |        |        |      |        |   |        |    |        |        |          |          |   |        |        |                   | 1600 BCE                          |
| Early 2nd MBCE          |     |   | ↑<br>↓ |        |      |        |   |        |    |        |        |          |          |   |        |        |                   | 1800 BCE                          |
| Early Bronze Age        |     |   |        |        |      |        |   |        |    |        |        |          |          |   |        |        |                   | 2000 BCE                          |
|                         |     |   |        |        |      |        |   |        |    |        |        |          |          |   |        |        |                   | 3000 BCE                          |

Fig. 3. Chronology of the operations.

### Bronze Palace: Phase I

Excavations in 2011 brought about some additions to the plan in the northern areas through the excavations of grid squares N1010E1160, N1010E1170-1190, and a 2.5m strip across N1020-1022.5E1170-1190. Especially informative was the excavation of Room I.13, attributed to the uppermost Phase I. This room has a floor of baked bricks, covered in bitumen; very small pebbles seem to have accumulated in the corners, trodden into the bitumen. Along the edge of the rooms, bricks are standing on edge; a sink-hole in the south wall marks the beginning of drain (N-748), running south. The drain, however, was found to be destroyed and apparently went out of use. The pavement extended over the actual wall-line in the SE-corner, where there was a doorway to the southern Room I.15. Two possible doors can be reconstructed to the NE, where three bricks extended over the bitumen line which elsewhere indicated the ancient wall line, as well as to the NW, where a pit destroyed the wall. The north wall is attested by a few brick lines only due to its being very close to the surface. Our excavations suggest that Room I.13 was a remodeling of a phase II room, following its extent and reusing its walls, but using differently colored bricks, which were laid less well. Drain N-748, apparently, was not repaired for that later reuse.

In N1010E1170, vessel ZT 38079, protruding from the modern tell surface, turned out to be a tall flask, one of the grave goods associated with Late Assyrian burial N-581. This burial was disturbed by a later *tannur* (N-575, probably of Medieval date) which seems to have cut away the lower part of the body as its legs are missing completely. Grave goods included a fibula (ZT 38130) indicating a date in the 7<sup>th</sup> century BC or later according to Pedde's typology of fibulae (Pedde 2001). This date is in agreement with its stratigraphic position above the floor to Room II.11 and, therefore, postdating Phase II.

### Bronze Palace: Phase II

The recent excavations also clarified a number of important details relating to the 8<sup>th</sup> century BC palace (Fig. 4), despite extensive pitting of Medieval date. One principal observation was in grid square N980E1160 which was excavated to examine a major

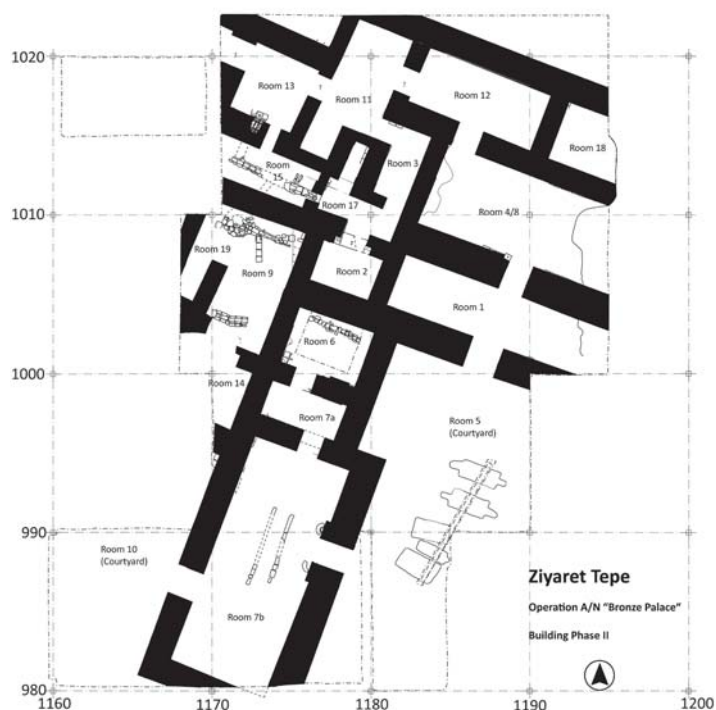


Fig. 4. Plan of the Phase II Bronze Palace, Operation A/N.

north-south running mudbrick wall (N-510) that appeared to form the western wall to Room 7. It was established that wall N-510 turns east at its southern end and does not continue into the baulk. This is significant because from this observation we can conclude that Room 7 immediately gave way into the western courtyard of the palace complex. Our expectation, given the “standard” form of Assyrian palaces, was that there would be an antechamber west of Room 7, but this appears not to have been the case with the Bronze Palace. Also in N990E1170, south of pit N-651, we found a cross-wall demonstrating that the building plan had an additional room, Room II.14, located to the west of Room II.7a, and having the effect of reducing the size of the courtyard.

A number of other additions and modifications can now be made to the Phase II plan of the palace. (1) Our excavations suggest that Room II.13 was a remodeling of an earlier room. Following the 2010 excavations it was clear that Room II.3 had a doorway in the north-west leading to an unexcavated room. Room II.3 opens into Room II.11 and was therewith connected to Room 13. A southwest annex to Room II.11 appears to be a well or sink. Only the uppermost area could be investigated and appeared as a built construction, similar to a large cess pit N-511 beneath Room I.9. Room II.11 posits some problems, for no proper floor was found to it. Room II.13 was connected to Room II.15, which was equipped with a small bench and canal-mouth in its northeast corner. A major drain (N-735+741), constructed out of baked-bricks and stone, was running east to west through the room. A connection to the large cess-pit N-511 at the N-corner of Room I.9 appears to be quite likely, but cannot be proven due to two large pits, which cut into the southern part of Room II.15 and its south wall. Room II.15 gave access to Room II.17, a narrow dead-end of about 80cm in width, which might be interpreted as a staircase.

To the northeast, the existence of Rooms II.12 and II.18 could be proven by scraping the surface; their attribution to Phase II was made because of their orientation and the use of similar bricks as in Room II.4/8 and II.1. A re-investigation of Room II.1 confirmed the hypothesis, that it was constructed as a separate antechamber in Phase II. Its function changed to an open alcove, however, after a remodeling in Phase I: the southern wall was clearly laid over by courtyard-bricks. In 2012, a deep sounding showed evidence that the eastern part of the Phase II building required a mudbrick foundation platform because there was a pre-existing erosion gully which created uneven terrain for the 8<sup>th</sup> century BC construction.

In 2013, work concentrated in trenches N1000 E1170 and N1000 E1160, where a deep sounding was first opened in 2009. The west section of this excavation area had eroded heavily during the last few years; therefore, it was cut back by 2m to the west along its full length with a goal of adding to our plan of the building and clarifying the nature of the rooms that lay to the west of the previous excavations. In the northern part of that western extension of the deep sounding, it was possible to trace the remains of the Phase II walls delimiting Room II.19. The collapse of the Room II.19 included fragments of painted wall plaster, similar to those described in earlier reports from Room II.7, but in poor condition. Immediately below, an earlier building phase (Phase III) followed the same basic plan supporting the conclusion that the Phase II palace immediately followed the Phase III palace chronologically, using its old walls as foundation.

### Bronze Palace: Phase III

When clearing the disturbed area along the western section in Room II.9, a well preserved brick pavement (N-630) came to light, thickly covered in bitumen with an associated wall N-671. The bricks of Wall N-671 were unusual; they were large (up to 90cm by 60cm) and were made out of coarse reddish clay containing a fair amount of limestone, set in grey mortar, with unusually thick mortar-lines. N-671 forms one side of a room, at least 3.60 m in length, which, significantly, precedes the Phase II building. The wall could not be excavated in its full width, since the outer faces are hidden, respectively beneath walls N-112 and N-265. Wall N-671, as well as pavement N-630, is set atop an infill of baked brick fragments, rubble, and large sherds in a reddish clayish matrix. It appears possible that Wall N-671 and pavement N-630 represent vestiges from a 9<sup>th</sup> century BC version of the Bronze Palace.



Fig. 5. Canal N-835 exposed in Operation A/N which served as part of the drainage system inside the Bronze Palace.

By excavating through the palace floors, we were able to observe subfloor construction techniques used by the Assyrian builders. As documented earlier, the Bronze Palace had an extensive internal drainage system. In 2013, we exposed canal N-835 that led into cess-pit N-865 (Fig. 5). Incorporated in the brick lining of the canal was half a brick with a gameboard scratched into it (ZT 41642). The canal was cut by pit N-811, and a baked brick with semicircular hole in a direct line to the east running through wall N-265 indicates its point of origin. The canal and cess-pit would have served Room III.6. Another drainage system, excavated previously in this area, serviced Room III.9. The cess-pit was completely preserved with false vaulting *in situ* but was only reached in the final week of excavation. The uppermost six courses of the cesspit are mudbrick. The seventh course from the top mixes limestone blocks and bricks. From the eighth course downward the sides of the cess-pit are made

of unworked or roughly hewn limestone blocks of small to medium size. The bricks and stones are covered with a whitish layer of salt or phytoliths. The pit itself was empty for the top 1.40m and comprised rather soft, blackish-greyish material with a few bones and brick fragments.

### Summary: Operation A/N Excavations

The earliest occupation remains discovered at the bottom of Room 6 did not reveal any clear architectural features. Wall N-539 and stone paving N-363 are to be dated to the Middle Assyrian period based on stratigraphy, a preliminary reading of the pottery, and the

unusual thick (ca. 12 cm) bright orange bricks laid in light-grey mortar comprising N-539. However, the construction of stone wall foundation N-839 is different from the typical Middle Assyrian wall foundations and Dr. Wicke has argued on stratigraphic grounds that N-839 must represent a pre-Middle Assyrian phase and, accordingly, that the deposits of N-854, N-857 and N-858 underneath ought to be considered as Late Bronze Age or earlier. In clearing Rooms 6 and 2, work was considerably hampered by the presence of two large pits. One of these pits (N-829) contained an unbaked clay tablet (ZT 41575) mixed with brick rubble that was thrown into the pit while building up the foundation to that room. The tablet, to be described fully in a subsequent publication, is early Late Assyrian in date and lists 25 cloth garments. In sum, before the Late Assyrian building was constructed, there must have existed a Middle Assyrian predecessor building incorporating a stone-paved courtyard and considerable mudbrick walls.

#### LOWER TOWN EXCAVATIONS

Eight excavation areas were excavated during the 2011-2013 field seasons under the general direction of Dr. John MacGinnis. Two of these were horizontal expansions of earlier excavations; both Operations K and M were undertaken with the specific goal of recovering more of the plan of domestic buildings recovered earlier and to secure additional well stratified archaeobotanical and zooarchaeological samples for analysis of commoner dietary and economic practices. As detailed below, the excavation of three soundings in Operation W were undertaken to answer specific questions about the monumental mudbrick building in the lower town previously excavated as Operation GR. Additionally, five new operations commenced with the goal of investigating specific structures targeted after geophysical prospection. The results from these excavations both allow us to now refine our interpretation of the plan of Assyrian Tušhan, and to document a previously unrecognized occupation of the site in the Late Antique period (5<sup>th</sup>-6<sup>th</sup> centuries AD) in Operations T and U.

#### **Operation K: Assyrian private housing**

Operation K is located in the southern lower town, in an area associated with the Late Assyrian city wall. The first excavations in Operation K were conducted under the supervision of Dr. John MacGinnis in 2003 and Prof. Dr. Kemalettin Köroğlu in 2004. During these previous two seasons, an area of 20m by 10m was excavated, resulting in the discovery of the city wall running in a SE-NW direction, and a domestic residence constructed immediately inside the city wall. The city wall was constructed of mudbrick on top of an artificially raised terrace. The area outside of the wall was deeply trenched, creating a large moat in order to increase the city's defenses as well as to possibly direct water coming from a small tributary to the south of Ziyaret Tepe through channels situated outside the walls and ultimately draining into the Tigris River. The 2013 work in Operation K aimed at exposing the eastward continuation of the Late Assyrian domestic building discovered during the 2003-2004 excavation seasons, and to determine its phases of use, complete plan, and function.



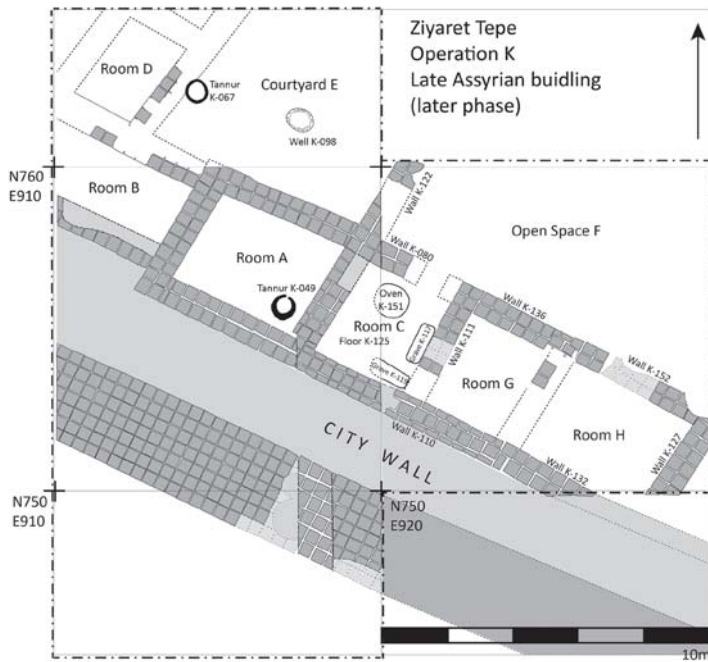


Fig. 6. Operation K domestic architecture at Ziyaret Tepe.

area dug in 2003-2004 in trench N750 E920. In 2013, the eastern half of Room C and two additional rooms were discovered. The plan of the Operation K building now comprises eight rooms (Fig. 6). Five of these rooms (B, A, C, G and H) are situated on a NW-SE axis, adjacent to one another and parallel to the city wall for the course of about 20m. The newly excavated part of the building in Operation K also had two occupational phases and it was confirmed that the same ground plan was repeated in both phases. The mudbrick foundations of the later phase walls are somewhat better preserved than those of the earlier phase. Individual mudbrick sizes of both phases are similar, ranging between 38cm and 40cm on a side. The walls comprise alternating courses of two full-bricks followed by a course of one half-brick set to either side of a full-brick, yielding wall thicknesses are of 80-90cm, identical to those discovered in 2003-2004.

Room C was 3m by 3m in extent and has floors and associated artifacts corresponding to both phases. The northern and eastern walls of the earlier phase were discovered at foundation level. The most important unit of this phase is a simple earthen grave dug into the mud floor aligned in a north-south direction. The head of the skeleton inside the grave is on the north, with the skull facing eastwards. The right hand was placed on the stomach, and the left hand was resting to the left side of the face. In the later phase (K-125), the floor was raised by approximately 20cm and a hearth (K-151) was placed above the earlier phase grave. Immediately beneath this later phase floor, there are two burials running parallel to the eastern (grave K-117) and southern (grave K-119) walls. There are no finds in the graves except a vessel base in grave K-119, where only the foot bones of the body are preserved. The entrance to Room C is reconstructed to be in the north. A possible baked brick threshold of the earlier phase and the

Previous excavation in Operation K had unearthed a building comprising four rooms (A-D), a courtyard (E) and a semi-open space to the north of the courtyard, dated to the 8<sup>th</sup>-7<sup>th</sup> centuries BC. It is evident from *in situ* tannurs that two rooms (A and E) were used for cooking purposes. The courtyard to the north was paved with pebbles and re-used bricks, with a deep well (K-098) in the middle. The mudbrick walls were 80-90cm thick and excavations in 2003-2004 showed two phases of occupation. New excavations in 2013 were conducted to the east of the



pivot hole/door socket of the door were discovered on the northern wall in the northeast corner of the room. The later phase door must be on wall K-080 that runs in the same direction.

The northern walls of the two rooms east of Room C were damaged by numerous later pits. In some cases the walls can only be traced below the foundation floor level on the floors of the pits. Some mudbrick remains of a wall dividing rooms G and H were discovered at the bottom of a later phase pit. Room G is 3.0m by 2.5m in extent. Of the earlier phase walls of this room, the southern wall is discernable, whereas the other walls can only be traced as foundations. There are no *in situ* finds on the floor of the earlier phase. The western (K-111), northern (K-136) and southern walls (K-110) of the later phase are discernable. The floor of this phase is not preserved, most likely due to its proximity to the surface. Room H was poorly preserved. The mud floor (K-129) of the earlier phase of Room H was exposed. However, the later phase floor could not be identified. The northern and southern walls of the earlier phase of this room are discernable, whereas only traces of the eastern and western could be revealed. In the later phase, all walls (K-127, K-132, K-152) but the western wall were delimited.



Fig. 7. Photograph of Late Assyrian building in Operation K facing west. The meterstick sits on the lower floor of Room G. Room C extends into the far baulk.

The damage caused by the later phase buildings and pits is more extensive to the north side of the Late Assyrian building. The fact that the entrance to Room C and Room E is in this area and that traces were uncovered of a possible paved threshold in wall K-122 between Courtyard E and the open area suggest that the area to the north of rooms G and H was used as a general purpose space. In 2013, in addition to Late Assyrian pottery, the finds of two fibula fragments, one stone vessel fragment, one stamp seal and two beads aided the dating of this building in Operation K. It is notable that this material is of a generally lower quality and

quantity than found at other more substantial domestic residences across Ziyaret Tepe, suggesting that this was an area of commoner housing.

In Operation K, on the northern side of the trench N750 E920, remains of a completely different character than typical Late Assyrian architecture were discovered just below the surface. The poorly preserved architecture of this occupational level consists of two drainage pipes and associated rows of oval paving stones, and groups of stones that could be post holes or bases of some sort. Similar rows of stones were discovered in previous excavation seasons both in Operations K and T and are the subject of on-going analysis.

### **Summary: Operation K excavations**

Work in Operation K in 2013 allowed for the clarification of some previously indistinct details and correction of various earlier assessments. For instance, it is now understood that the courses of mudbrick which we considered to be benches in Room A and Room C were the walls of the earlier phase (cf. Matney and Rainville 2005: 33-35; Fig. 10). It is also understood that after the destruction of the earlier phase building, the rubble was cleared to the foundation level and the earlier phase floors were raised by 15-20cm. In the later phase, the building was shifted 80-90cm southwards and was rebuilt using the same plan. There is no evidence of fire or destruction in the Late Assyrian buildings. There is also continuity in use through both phases. Room C, excavated in 2013, appears to have been chosen for intramural burial during both phases. This situation is similar to Room A and Room E, excavated in 2003-2004, being used as possible kitchens with *tannurs* in both phases. Consequently, it can be argued that there is not a long occupational gap between the two phases.

### **ZOOARCHAEOLOGICAL REPORT OPERATION K, 2003-2004 (T. GREENFIELD)**

This report describes the zooarchaeological remains collected during the excavation of the Late Assyrian domestic structures in Operation K during the 2003 and 2004 field seasons by Prof. Kemalettin Köroğlu. The faunal remains from the 2013 excavation season are still under analysis and are not included here. As such, the discussion is limited to those remains uncovered by the end of the 2004 season: four rooms (A, B, C, D) and a central courtyard (Room E) located to the northeast of those rooms (see Matney 2005: 32-35 for an initial description). As noted above, based on location of the structure, and the nature of associated material remains and architecture of the building, the excavators argue that these rooms housed commoners living just inside the city's fortification wall.

### **Sampling protocols**

The entire sample of faunal remains was collected according to site-wide protocols. All primary contexts (suprafloor or just above, defined pits/features) were either sampled and sieved on a 1:5 bucket ratio or fully sieved depending on the feature excavated. Secondary contexts (fills and building collapse) were hand-collected as part of the larger excavation process.

(Greenfield in Matney 2009). Micro-fauna which were collected as part of the flotation or micro-debris samples are not included in this report and this therefore can lead to a bias in the report towards larger animals.

### **Taxonomic frequency**

The total sample of bones for the building was 468 pre-excavation fragments. No articulations were present in this sample and each fragment appears to be from a separate bone element and/or individual. Only mammals are present in this sample. Initially the sample included two human specimens which have been removed from the analysis, which decreases the total to 466 fragments. Completely unidentifiable fragments were counted ( $n=9$ ) but not used in the final analysis of taxonomic frequencies. This brings the sample number down to  $n=457$ . Identified to a genus or more specific level there are 270 specimens when the general categories of mammal (large, medium, and small) are excluded. The 270 fully identified specimens will be discussed in relation to state of domestication and element representation.

### **Domestic versus wild taxa**

The overall animal assemblage is overwhelmingly composed of domestic taxa. This implies exploitation and animal husbandry strategies are primarily geared towards the consumption of domestic animals (sheep/goat, cow, and domestic pig). Domesticated animals dominate with 92% followed by wild specimens at 8% of the total sample.

*Domestic taxa:* The highest frequency of remains is from caprines (*Ovis aries* (sheep) and *Capra hircus* (domesticated goats) ( $n=154$ ) (Fig. 8). Of these, most elements can not be distinguished between *Ovis* and *Capra* ( $n=106$ ). Thirty-one elements are distinctly of *Ovis aries* while 17 are from *Capra hircus* ( $n=17$ ). *Bos taurus* (cow) is the second highest taxa frequency with ( $n=40$ ), followed by *Sus scrofa dom.* (pig) ( $n=35$ ). There is a drastic decline in the frequency for the remaining domestic animals. *Canis familiaris* (domestic dog) has the next highest frequency ( $n=5$ ), followed by equids [*E. asinus* (ass) and *E. caballus* (horse) with 2 specimens each].

*Wild taxa:* The highest frequency comes from *Lepus sp.* (hare), ( $n=7$ ), followed by *Gazella gazella* as the most frequent species ( $n=4$ ), *Dama dama sp.* (fallow deer) with three specimens, and *Capreolus capreolus* (roe deer) with two specimens each. *Cervus elaphus* (Red deer), *Anura sp.* (frog), *Rodentia sp.* (rodent) and *Sus scrofa fer.* (boar) each are represented by a single element in the sample. These species distributions are starkly different from what was found in the “Bronze Palace” on the upper citadel at Ziyaret (Greenfield in Matney 2011). For example, turtles/tortoises and exotic birds are found only in the palace.

### **Element distribution**

One indicator of status or wealth in ancient complex societies is linked directly to what types of meat were consumed (Curet and Pestle 2010; Grant 2002). Analyses of body

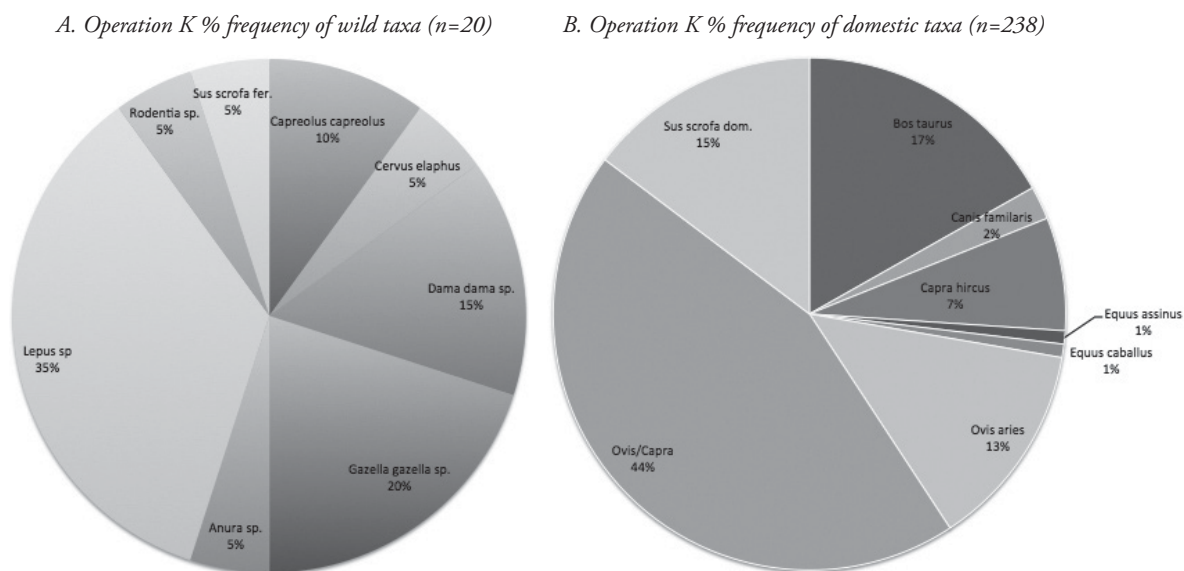


Fig. 8. Pie chart showing the distribution of domestic and wild species represented in the Operation K zooarchaeological assemblage.

elements or portions of the body that are consumed is an integral part of the process in determining social and economic factors within a settlement (DeFrance 2009; Marom et al. 2009, Reitz, 1987: 109). A brief description of portion preference of animals from Operation K is provided below.

In terms of domestic animals utilized in the Operation K structures, there is evidence that all body portions (cranium, proximal limbs, thorax and distal limbs) of the sheep and cows were consumed including the undesirable ones with little or no meat (i.e., distal ends of limbs). There is no indication of a preference for specific cuts/portions which would have yielded the highest meat weights (e.g., upper anterior and posterior limbs). The entire carcass was used for most of the domestic species. The exception to this pattern is for *Sus scrofa dom.* which showed a clear preference for cranium and thorax (ribs) elements over other parts of the animal.

In terms of wild animals, the majority of the sample is comprised of smaller animals that could easily be eaten as a whole unit without portioning them. The larger animals (*Cervus elaphus* and *Capreolus capreolus*) are the only two samples used to investigate element/portion preference and even these numbers are really too small to give an accurate picture of portioning. The data, however, did show a small increase in the posterior and thorax portions over the rest of the body in both of these species indicating a slight preference for this part of the animals' body. Again, these selected portions of the body are usually indicators of elite status and these results suggest the utilization of only parts of the carcass in the domestics but must be used with caution due to the small sample size.

Analysis of element preference for several domestic species (cow, sheep/goat and pig) and two wild species (red and roe deer) indicates a clear pattern of consumption. Most or all parts of the animal remains from in the house were consumed equally with a very slight prefer-

ence for posterior portions in wild animals. Element preference for both categories of domestic and wild taxa does not seem to be the driving force of food consumption, but rather a case of utilitarian means and access to any available meat. This pattern of consumption is indicative of low status households (Greenfield 2014). The pattern of high frequency of low status wild animals (rabbit, small deer, rodent and wild pig) in the house confirm the occupants as lower-ranked members of society. Diets are sometimes supplemented in the lower status houses, possibly as part of a diversified subsistence strategy (Reitz 1987). The combination of the presence of elite species and a clear element preference from the palace gives an indication that diet was somewhat geared towards status and prestige in this area. This is clearly not the case for Operation K. It was not until the both faunal samples were fully analyzed that the differential patterns emerged between the two areas.

### **Summary: Operation K Zooarchaeology**

The faunal remains from this building indicate the use of wild and domestic animals for utilitarian purposes. Based on these preliminary results from Operation K it is evident there is a predominance of domestic fauna with a supplement of low status wild animals into their diet which differs significantly from the pattern seen in the elite areas of the site such as the Bronze Palace. While there is a preponderance of the traditional domestic species (cow, sheep/goat and pig) in this house also endemic to most of Mesopotamia at this time, the interesting details are with the distribution of wild fauna at Ziyaret Tepe.

## **OPERATION M**

Operation M is located to the south of the mound, where the lower city is situated. Here the excavations were conducted by Prof. Kemalettin Köroğlu and Harun Danişmaz in 2012. The trench N760E790 dug here measures 10m by 5m. A previous trench opened in 2004 measured 1.5m by 10m and revealed architectural remains belonging to two distinct building levels, and the presence of well-constructed street (Matney and Rainville 2005). The 2012 work brought two building levels to light. The latter level (M1) reflects the characteristics of small-scale occupation, while the lower level (M2) comprised substantial mudbrick architecture of the Late Assyrian period. These results parallel those of the previous excavations.

### **Level M1: Pit Level**

Beneath the 30cm deep plow zone, possible faint traces of the first building level were discovered. A pebble and sand layer in the south of the trench and fourteen pits belongs to this level. Pit M-103 in the southwest of the trench yielded glass and pottery fragments. A nearly complete pot (ZT 42014), two earrings (ZT 420009, ZT 42025) and a ring (ZT42012) found in the north of the trench, immediately beneath the agricultural soil might be related to this level though they were not *in situ*. Dating of this strata is uncertain.



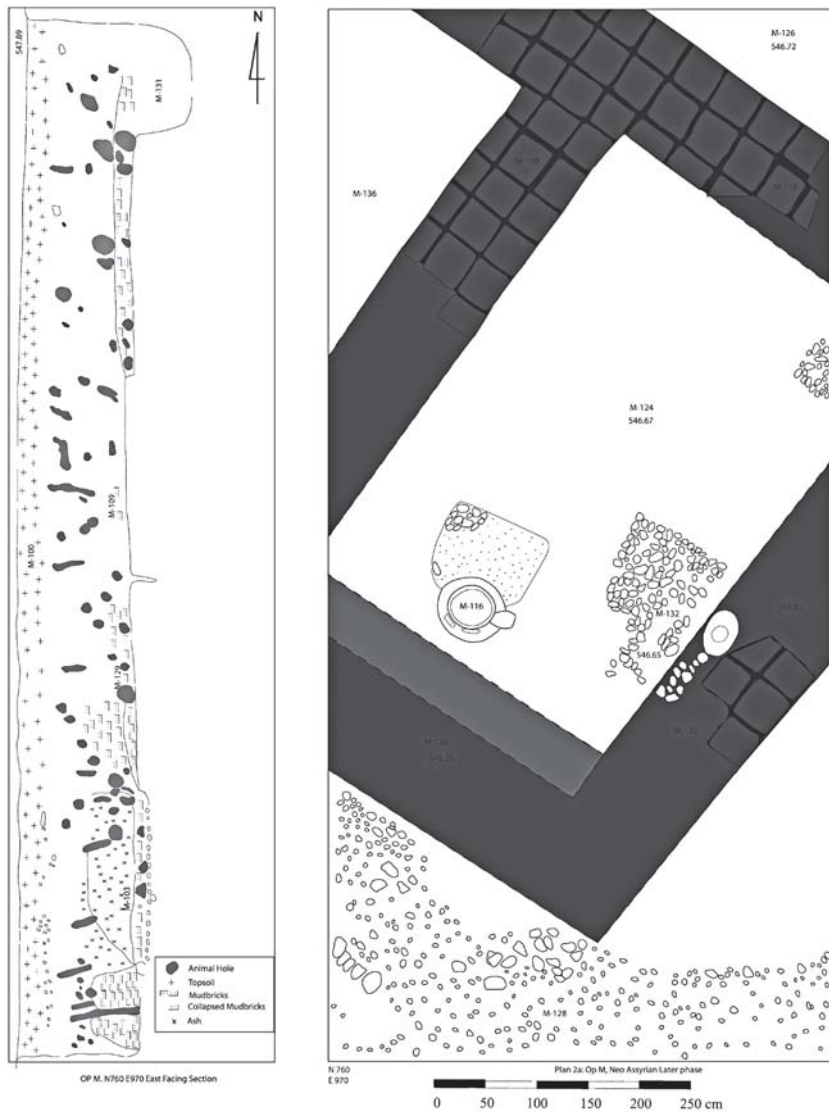


Fig. 9. Late Assyrian building in Operation M, Level M2.

### Level M2: Late Assyrian Building

Traces of melted mudbrick walls were encountered 60cm beneath the surface, but remains of what can safely assumed to be walls were found at a depth of 1.0m. The architecture of this level comprises two rooms and remains of a street (M-128) in the south of the trench (Fig. 9). Room A (M-133) measures 3.4m by 5.0m. Room B was found in the northwest corner. The walls are between 1.0m to 1.1m in thickness, built with courses of two and a half bricks placed side-by-side. The walls do not have stone foundations. It was determined that this structure had two phases and was dated to the Late Assyrian period through small finds.



In the early phase, foundations of the north (M-110), west (M-109) and east (M-130) walls of Room A have been excavated. A door pivot stone found 1.1m north of the southeast corner was placed here in the later phase, which might point to the fact that the entrance was at the same spot in the early phase. The foundation trench of the south wall runs parallel to the pebble-paved street, suggesting that the room and the street (M-128) were contemporary. The interior face of the wall (north) is not clearly observable. The extant foundation trench shows the possible existence of a thicker wall or a bench adjacent to it.

The floor of Room A was made of pressed mud and produced no finds. In the center of the floor is a pit 50cm in diameter and 1.0m in depth (M-135). A similar pit was discovered in Room B to the northeast. The most significant finds of the early phase of Level M2 were unearthed in two graves: M-131 and M-134.

### *Grave M-131*

This grave was dug in the north corner of N760/E970 trench, into floor M-136. It measures 1.00m by 0.80m and has two child burials. The later burial was placed in the north of the grave, 20cm below the room floor, while the earlier one was in the south and 45cm below the floor. The skeletal remains of both children are not well preserved. Of the skeleton on the top only pieces of skull, ribs, arm and vertebrae were uncovered. The only find from the burial is a bronze bracelet on the left arm of the higher skeleton (ZT 42151). The lower burial's bones are fragmented except for the skull. A bowl (ZT 42153) was placed below the rib cage.

### *Grave M-134*

This grave was dug at the edge of wall M-109, into the floor M-133 (Fig. 10). The cut of the grave measures 0.70m by 1.85m and it was extended as the pit deepened. The skeleton was initially measured at 1.70m tall and was laid face down. The right hand is near the right shoulder, while the left hand is below the chest. All the grave goods were found near the skull

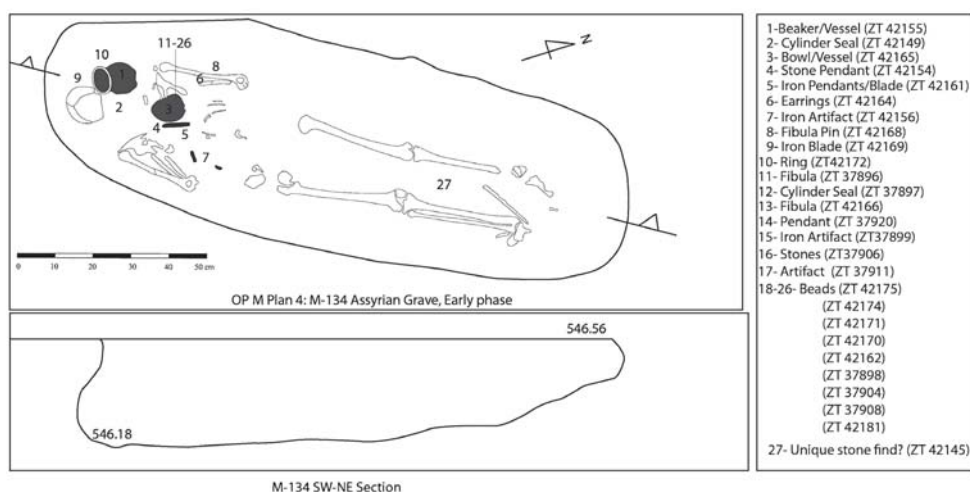


Fig. 10. Grave M-134.

and ribcage. The function and the dating of the building were determined in the light of the grave finds. The bowls in both graves, and beakers, fibulae and beads are similar to those from the Late Assyrian period. The fibulae in particular are dated to the 8<sup>th</sup> century BC, providing a rough date for this burial.

In the late phase, the plan of the room related to floor M-133 was preserved, but there are indications that its function changed. A new floor (M-124) was formed by raising the earlier one. A *tannur* (M-116) discovered in the south of the room belongs to this phase. The entrance is not from the street to the south, but from the east wall. A door pivot stone found on the east wall related to a stone-paved entrance immediately to the west. The grave goods indicate that the earlier structure belonged to wealthier individuals. Modifications in the later phase, which included a hearth, suggested a rearrangement of the earlier spatial layout of the room.

## OPERATION T

Operation T was a new excavation area in the southern lower town at Ziyaret Tepe. Two 10m by 10m grid squares, N770E1070 and N760E1070, were chosen for excavation as the result of a previous magnetic gradiometry survey in 1999 (Matney and Bauer 2000) which suggested that Operation T represented an area of private housing bounded by streets on the northern and southern sides. The aim of the operation was, therefore, to explore the domestic housing of the ancient city in order to complement exposures of large public and elite housing excavated elsewhere. Work in Operation T was directed by Prof Dr. Kemalettin Köroğlu.

### Level T1

The uppermost occupation levels in Operation T comprised imperfectly preserved stone wall foundations with associated cobbled surfaces in both trenches. No good floor surfaces were found for this level but there were a number of associated *tannurs*. The finds in these upper levels included many pieces of broken roof tiles, ceramics including strap-handled jar fragments and glass fragments, including a glass funnel (ZT 39068). The area was heavily pitted, of which two pits (T-005 and T-009) had roof tile fragments on the surface, one pit (T-007) was filled with a heavy concentration of broken roof tiles and yet another pit (T-017) contained a single complete tile. Many of the other pits contained either ashy fill or a soft earth fill suggesting that they held domestic waste.

### Level T2

Underlying these remains was an earlier phase (T2) which was much better preserved. The architecture of this lower phase consisted of foundations made of larger stones than in Phase T1, together with an intact floor (T-031). (Fig. 11) On the floor lay a well-preserved domestic assemblage including a large terracotta tub (ZT 39133), three small bowls (ZT 39188, ZT 39189, ZT 39206), two small flasks (ZT 39315, ZT 3930), and a basalt potstand (ZT



Fig. 11. Late Assyrian building in Operation T, Level T2. Floor T-031 inside stone walls foundations. Photograph of northern part of the operation, from the west.

39264). Of particular interest was a sherd from a pilgrim flask with an elaborate incised decorated (ZT 37204). The small finds included a bronze ring (ZT 39073) and a number of objects made of iron: a ring (ZT 39134), two keys (ZT 39067, ZT 39104) and two iron plaques, and perhaps horse fittings (ZT 39314). A large flat stone, perhaps for grinding grain, also lay on the floor. Particularly important for dating was a coin of Justinian found on the floor and a coin of Constantine II found be-

low the floor; a third coin was also found in the baulk. The second of these gives us a *terminus post quem* for the abandonment of the building.

In an attempt to expedite the discovery of remains of Assyrian date, the southern square was divided and a 5m wide section was delineated across the northern half of that square for deeper excavation. This trench was excavated to 30cm below the surface of the Phase T2 remains but no Assyrian remains were recovered. The area continued to be afflicted by heavy pitting. After these pits had been excavated to depth of a further 50cm without any solid evidence for Assyrian remains, the attempt was abandoned. At this stage, our evidence suggest that the interpretation of the magnetic anomaly running obliquely across the area of Operation T was an Assyrian street is either incorrect, or that this feature is buried more deeply than anticipated.

### The coins

Initial identification of the coins in the field was undertaken using on-line catalogues examined for comparanda. We are grateful to Edward Dandrow for corrections and for further information on these coins. (Fig. 12) Coin ZT 39223, found *in situ* on the Phase T2 floor, is a copper alloy coin dating to the reign of Justinian (AD 527-565). The obverse shows the emperor's head in profile wearing a ribbon or laurel leaves with the inscription DV IVSTINIANVS PP AVG around the edge; the reverse has a large M with three dots underneath, a star on the right, a cross on the left, and another cross above. It was minted in Constantinople. Coin ZT 39240, found in a tertiary context, is a copper alloy coin dating to the reign of Arcadius (Flavius Arcadius Augustus), emperor AD 383-408. However the dating of this particular coin can be further narrowed as this reverse was only in use when he was Emperor in the east, AD 395-401. The obverse depicts the emperor himself while the reverse shows the emperor

holding a sceptre and shield with the figure of Victory standing to his left crowning him and holding a wreath above the emperor's head. The obverse carries the inscription: DN ARCADIUS PF AVG. The reverse inscription reads: VIR[TVS EXE]RCITI. This coin was minted in Cyzicus. Finally, coin ZT 39345, found under the Phase T2 floor, is a copper alloy coin of Constantius II, emperor AD 337-361. The obverse has the head of the emperor with a ribbon in his hair and an inscription effaced but perhaps to be read: [DN] CONSTAN-TIVS PF [AVG]. On the reverse the motif is a Roman soldier spearing a Persian horseman; it is however possible to partly make out the inscription, perhaps FEL TEMP REP[ARATIO]R. This coin was minted in Constantinople.

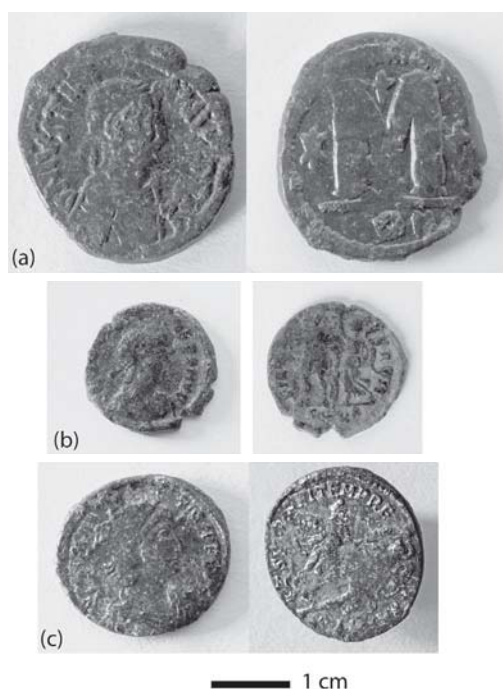


Fig. 12. Roman coins from Operation T.  
a: ZT 39233 (Justinian); b: ZT 39240 (Arcadius); c: ZT 39345 (Constantius II).

## OPERATION U

Investigations were carried out in Operation U, situated in the far southeast corner of the lower town, in the 2011 season. We were keen to work in this locality as it was a part of the site where we had not hitherto conducted any excavations, but our interest was particularly focused by the results of the mapping by magnetometry carried out in 2009 (Matney et al. 2011: 94, 112, Fig. 18) which had produced indications that there might be a series of three substantial residences situated in this area close up to the city wall. However, intriguing as these images were, they were faint and in need of corroboration. Accordingly, a main aim of the work in Operation U was to further investigate these features and we approached this by a combined plan of resurveying the area using resistivity followed up with targeted excavation.

## Operation U Geophysics

The geophysical survey was carried out as follows: having secured the permission of the land owner, a 40 x 40 m area was staked out (with the southwestern corner at N720E1340) and the stubble of the wheat crop, which had been harvested, burnt off. This 1600 m<sup>2</sup> area was then subdivided into a grid of 10 by 10m squares and in the course of the season the entire area was mapped using electrical resistivity. In the course of preparing the area for the geophysics a Paleolithic handaxe (ZT 40441) was found in the southeastern square of the operation (N720E1370). The electrical resistivity survey generated a significantly more detailed and comprehensible ground plan of the building than previous magnetic gradiometry (Fig. 13).

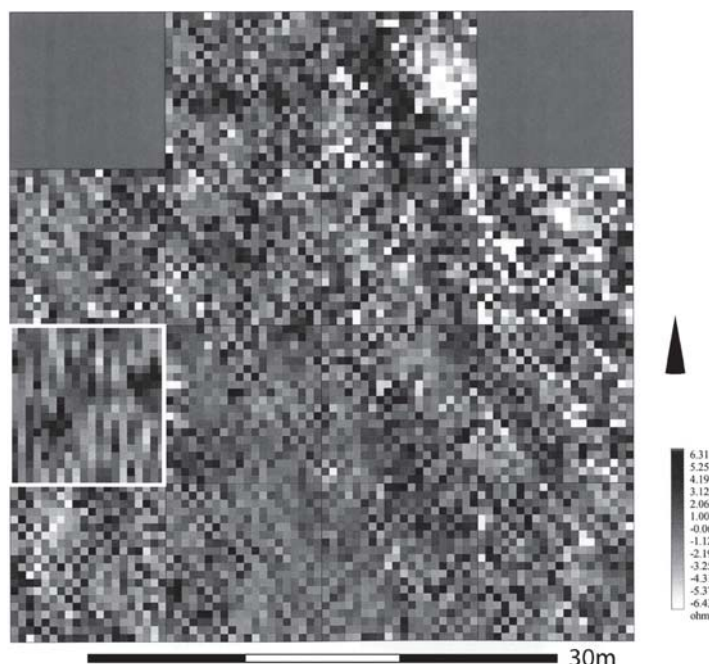


Fig. 13. Preliminary presentation of processed electrical resistivity data from Operation U.

## Excavations in Operation U

In order to ground truth these results and to gain an insight into the stratigraphy of the area we also conducted a targeted excavation in Operation U. The grid square selected for excavation was N730E1340, chosen because it appeared to straddle the western side of the building and might therefore be expected to give an idea of both internal and external areas. To our surprise, the first intact remains we came upon were Late Roman in date. Starting in the plough zone a large quantity of Roman pottery was found as well as a few fragments of glass

and an iron nail (ZT 40105). In the end, we recovered two Roman layers, overlying Assyrian levels of which direct evidence for two phases was recovered and with every indication that further phases might lie below. Cutting into all of this were numerous pits, the contents of which were Late Roman in date. One pit, U-069, contained a well preserved limestone roof roller (ZT 40277), 5 cm long with a diameter of 21cm and weighing 48kg, evidently thrown into the pit, along with other stones, in order to create a solid foundation for a subsequent building level. A broken rock crystal bead (ZT 40059) was found in pit U-016 and an iron bell (ZT 40272) in pit U-071.

### *Phase U1: Upper Roman phase*

The upper Roman phase was characterized by stone wall architecture. This was only fragmentarily preserved. The main wall of this phase was a stone wall measuring 0.75m wide, consisting of a facing of stones on the outer sides and a mud infill, most probably foundations. The wall was cut in two places and consequently consisted of three stretches, U-002, U-005 and U-006. The surfaces associated with this phase were U-003 to the south and U-004 to the north. The former of these was not a well laid surface but rather a horizon comprising a thick layer of pebbles and probably representing an outside surface. U-004 was similar but with some fragments of mud plaster; it would therefore appear that this was an interior area.



### *Phase U2: Lower Roman Phase*

Removal of these remains exposed a second Roman layer of which the most striking aspect was that the walls were built out of mudbrick. The later phase was built almost directly over the earlier one and with little or no intervening space of time. Two walls were identified in this phase, a northerly wall (U-023) and a southerly wall parallel to this at an interval of 2.60m (U-031). Wall U-031 was a brick and a half wide, the full size bricks measuring 48 by 48cm square (thickness unknown). These are very large dimensions for mudbricks - considerably bigger than the standard Assyrian size. Wall U-031 was one and a half bricks wide, with a total width of 75cm. In the case of the more northerly wall U-023, it was extremely difficult to articulate the individual bricks or indeed to discern what the standard brick size in this wall was: possibly half bricks measuring 20cm by 40cm but there appeared to be many irregular pieces. A quantity of Roman ceramics and glass continued to be associated with this phase although far fewer roof tile fragments. This may suggest that the roof tile fragments found in the upper phase came from the roof of the lower phase building. The surfaces associated with this phase were cobbled surfaces. There was one *in situ* door socket installation comprising a white limestone door socket (ZT 40152) firmly emplaced on a broken stone trough (ZT 40179) stood on end over two stones with a large sherd wedged underneath.

### *Phase U3: Upper Assyrian Phase*

With the removal of the lower Roman phase we came down on to the remains of a Late Assyrian building (Fig. 14). The first indication of this was a mudbrick wall running approximately southwest-northeast in the eastern half of the trench (U-040), with a wall coming off at right angles to this in the southeastern corner (U-043). In due course further walls were identified:

U-085 coming off U-043 to the south, U-060 coming off U-040 to the east, and another return of the main wall, U-077, in the northeastern corner of the trench. This layout of walls delineated three main spaces, Room A in the southern part of the trench in the angle south of U-040 and U-043, Room B east of U-040 and between U-060 and U-066, and Room C east of U-040 and between U-066 and U-077. After removal of the upper Assyrian phase, the term 'Room B' was used to denote the whole space east of U-040 and between walls U-043 and U-077. The walls of this building were made of pink mudbrick measuring 40 by 40cm on a side with a thickness of 8-9 cm. Both the size and the use of the local clay are typically Assyrian. The areas exposed were excavated down to floor level.

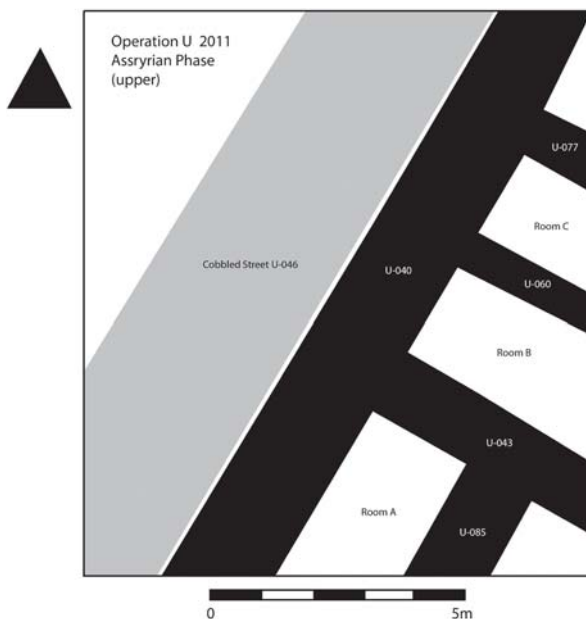


Fig. 14. Late Assyrian building in Operation U, Level U3.



Although there were no exceptional discoveries in terms of small finds, all these areas yielded excellent environmental material in the form of zooarchaeological and archaeobotanical datasets. All three floors were gridded into 50cm grids and 1 L samples taken from the squares, in the case of Room A and Room B from alternate squares in a checkerboard fashion, in Room C from every single square. While it may be assumed from both size and configuration that Room A and Room B were internal rooms, it seems likely that Room C was part of a courtyard: its floor comprised compressed grey clay containing a large amount of charcoal, a lot of ceramic potsherds, fragments of mudbrick, a considerable amount of bone and a large number of both small pebbles (up to 2cm long) and larger stones (up to 8cm long).

#### *Phase U4: Lower Assyrian Phase*

With the removal of the floors of the upper Assyrian levels, excavation continued down to reveal evidence of an earlier phase, distinguished by a wall (U-087) in the southeastern part of the trench underlying wall U-043 together with associated floor levels in the area of Room B. The surfaces had every appearance of being outside surfaces. There was also a potstand installed into surface U-094 consisting of a hole lined with flat pebbles 4-7cm long set in clay, with the upper rim composed of fragments of baked brick; the overall diameter of this installation was 35cm and the internal diameter 23cm. There therefore seems to be every likelihood that yet earlier phases lie below, but these layers remain unexplored.

To the west of Wall U-040 was a street, first encountered as an area of both larger cobbles in the southeastern part of the trench (U-046) and an area of smaller pebbles (U-050) in the north. It became clear that U-046 overlying U-050 overlying U-051 were all parts of the same street. Together they formed a metalling preserved up to 10 cm thick. They were laid on a band of heavy brown clay thickly set with pebbles (U-082) and this, in turn, overlay the stone surface of an earlier phase of the street, U-084 (Fig. 15) which it may be presumed corresponds with the earlier Assyrian phase found elsewhere. At some stage Wall U-040 was faced with an extra line of bricks (U-079) on its western side, laid directly onto the street surface, most likely as a repair or reinforcement against erosion caused by water in the street. A tiny clay juglet U-078 (ZT 40279) was found in the tough pink mudbrick collapse overlying the upper phase of the street.



Fig. 15. Street U-084 early phase of the Late Assyrian street showing the pebbled surface and a rich deposit of zooarchaeological remains.

### Summary: Operation U excavations

Work in Operation U succeeded in the two primary objectives of mapping the entire residence by resistivity and in excavating a sample 10m by 10m square in order to both groundtruth the results of the geophysics and to gain a more detailed picture of the stratigraphy involved. While the discovery of Late Roman remains in this area came as a surprise they are an important addition to our knowledge of the history of the site and indeed important in the context of the Roman occupation of eastern Anatolia.

### OPERATION V

The architectural remains in Operation V, situated slightly northwest of the southern city gate (Operation Q, cf. Matney et al. 2011), were first detected in a 2006 electrical resistivity survey (cf. Matney et al. 2007: 48 *passim*). A set of two parallel rows of rooms could be identified, measuring approximately 30m by 8m and separated by an open space, possibly a courtyard. The eastern row seemed to comprise a series of three rooms running NE-SW, with an approximate width of 6m and a total length of at least 30m. In the 2012 season work was commenced in this area under the direction of Kristina Sauer. The main objective was to confirm the geophysical map and to identify the function of the building, which was initially thought to represent some sort of storage facility or possibly military accommodation. Work began in grid square N790E880, where the corner of a pavement of black and white pebbles (V-047) was soon uncovered very close to surface. Since the area was badly affected by irrigation and ploughing, no traces of walls could be identified with certainty in the initial square and it was decided to follow the extension of the pebble floor to the south and by so doing uncover the whole room. Three occupation levels, two of them with subphases, were thereby identified: (1) the main Late Assyrian Level V2 with a late phase V2b of the pebble pavement and an older Phase V2a identified in a sounding in the SE of the room; (2) a later Level V1 marked by the presence of numerous *tannurs* overlaying the pebble pavement with two phases V1b and V1a which, based on the pottery, also seems to be Assyrian in date; (3) an overlaying level of uncertain date marked by a number of pits (Level V0).

### Level V1: the *tannur* level

In N780E870 two *tannurs*, V-029 and V-041, were discovered preserved to a height of approximately 0.3m and set on top of a trodden mud surface which does not represent a carefully laid floor but rather a utilitarian surface. The younger *tannur* V-041, Phase V1b, measuring 0.6m in average diameter is smaller than the older one (V-029) of Phase V1a which measures 0.8m. Both *tannurs* are constructed of solid clay in their lower parts and large Assyrian *pithos* sherds in their upper parts. Both had linings made of rim fragments, also re-using Assyrian *pithoi*. In between the two *tannurs* was a large grinding stone of white limestone, trapezoidal in form, with a depression in one end and a smoothed surface. The stone was cut into the underlying pebble pavement. Once the trodden mud surface around the two *tannurs* was discovered, a 1 by 1m grid was laid out in order to take environmental samples from both the

suprafloor and the mud surface itself. A detailed study of these samples awaits future research, but preliminary evaluations suggest that both the surface and its suprafloor were strikingly clean and poor in terms of archaeobotanical and zooarchaeological remains.

North of this working-space a sequence of five postholes was discovered, forming a rough square, together with a surface made of flat pebbles, sherds, and baked brick fragments. The postholes were circular in shape, measuring up to 0.5m in diameter and laid out with pebbles, each having a larger, flat stone in middle at the bottom. These features would appear to belong to a later encampment. A single door socket was found abutting the trench's western edge, possibly belonging to a building or room further west. The date of these features is uncertain, but since the pottery of this level is also Assyrian, it might represent a very late Assyrian or even post-Assyrian occupation in the city.

### **Level V2: The Late Assyrian Level**

The main work in Operation V was dedicated to uncovering the pebble pavement of the Late Assyrian building, and to gain insights in the function of the building itself (Fig. 16). The pavement was recovered in its entirety with the exception of an area in the northeastern corner where proximity to the surface had led to damage by ploughing; there is also damage caused by a number of pits cutting into this level. As with the overlying surfaces, a 1m by 1m grid was laid out in order to obtain environmental samples from both the suprafloor and the pebble pavement itself. With regard to the walls, the south wall was the best preserved, with mud brick lines and mortar joins which could be recognized, showing at least three and a half rows of mudbricks abutting the pebble pavement. In order to clarify the width of the eastern and western walls, three slot trenches were excavated whose sections showed that the western wall, measuring up to 2m wide, was noticeably thicker than the other walls, which only are 1.5 to 1.6m across. Once the wall lines were ascertained, the collapse outside the room at its eastern and southern façade was removed in anticipation of finding an outer surface. Instead, what was actually recovered was an older wall, representing Phase V2a, protruding 0.7m from the eastern wall of the room and clearly different in color: the mud bricks of Phase V2b are reddish and show a great amount of white chalk inclusions, whereas the older wall is made of yellowish bricks. Unfortunately, their size could not be determined. The northern wall (V-002) of the room, separating it from the small room, or rather corridor, was the worst preserved, which is not surprising considering the proximity of the deposit to the topsoil here. Since the area was also disturbed



Fig. 16. Late Assyrian pebbled pavement in Level V2.

by a large pit (V-019) this area was chosen as the site of a deeper sounding (V-086) in a 3m by 3m square with the aim of investigating whether there were any older floor levels or buildings levels: none were actually found, however, although this may be because the area was simply too damaged by agriculture.

The pebble floor itself was built on a platform of mud bricks at least four courses high, on top of which was applied a layer of grayish mud up to 10cm thick. Into this the pebbles were set vertically side by side, producing a compact, solid and resilient floor surface which was ideal for frequent use. The pebbles come from the Tigris riverbed. Most of them are roundish and flat with smoothed surfaces, and collecting them as well as setting them into the floor must have taken a considerable amount of time and labor. Further noticeable features of the floor are distinct bands of pebbles crossing the width of the room, apparently some form of partition. This kind of floor seems to be purely utilitarian in use and contrasts, for example, with the checkerboard mosaic pavements of Operation G/R: those pavements were moreover located in courtyards and certainly had a prestige value, whereas the Operation V pavement was located inside a room in a non-residential building. This raises the question as to the function of the building. The small finds recovered included a spool-shaped token (ZT 43120), an oxhide-shaped token (ZT 43174), a token fragment (ZT 43140), an iron spearhead (ZT 43188), a fragment of a bronze fibula (ZT 43360), a large red banded agate bead (ZT 43357) and a small blue frit bead (ZT 43106). These clues are not decisive but perhaps hint at a military and administrative function.

No doorways leading to the room could be identified since the postholes and the door socket mentioned above clearly belong to a later phase. There is a noticeable recess in the north-west part of the pebble pavement which probably indicates a doorway to the open space west of the room, but here as well no sign of an actual doorway could be traced. The other question is that of roofing. The room measures more than 5m in width and 13m in length. As the maximum span of a single beam is unlikely to be in excess of 4.5m (cf. Miglus 1999; Stone 1987, 53) this space must have had some form of central supports. As no postholes or pillar bases were discovered in the middle of the room, the supports must have been placed immediately onto the pebble pavement. Only a single feature in the northwest of the room could indicate such a feature: two massive limestone slabs set into the pavement, whose function otherwise remains obscure.

#### *Grave V-065*

In the southern part of the room were discovered the poorly preserved remains of a disturbed burial. The individual was laid in a shallow pit cut into the pebble floor, lying in a crouched position on his left side, with his head at the west end facing north. The arms were crossed in front of the upper chest. The upper part of the grave had been disturbed by ploughing while the lower part of the body, from the lower chest onwards, was cut away by a large pit (V-066); in these circumstances it is not surprising that no grave goods were found.

East of the main excavation area in Operation V two small soundings were excavated in grid square N780E890, the southwestern one covering an area of 3m by 3m, the northwestern one 2m by 2m. Both revealed a cobbled surface, of which the northeastern one is situated

0.7m deeper than the other. These stones, which must be the source of the anomalies visible in the resistivity map, presumably represent a metallised surface in the vicinity of the city gate.

### Summary: Operation V excavations

Investigations in Operation V once more proved the accuracy of the electrical resistivity survey carried out at Ziyaret Tepe. Furthermore, they revealed part of a building which seems to be purely utilitarian in function with a pavement which must have required a considerable investment of labor to construct and whose purpose must have been related to the function of the building. Since the small finds recovered do not greatly elucidate the room's function, the results of the scientific analysis of the intense sampling undertaken during excavation must be awaited. Considering the layout of the whole building as visible in the electrical resistivity map, and the close proximity to the southern city gate, it seems quite probable that the building may represent a large storage complex, even though no traces of storage jars were found except for the sherds reused in Level V1. Another possible interpretation, based on the fact that the building appears to extend west beyond an open space and on to a second row of rooms, is that it was some sort of caravanserai.

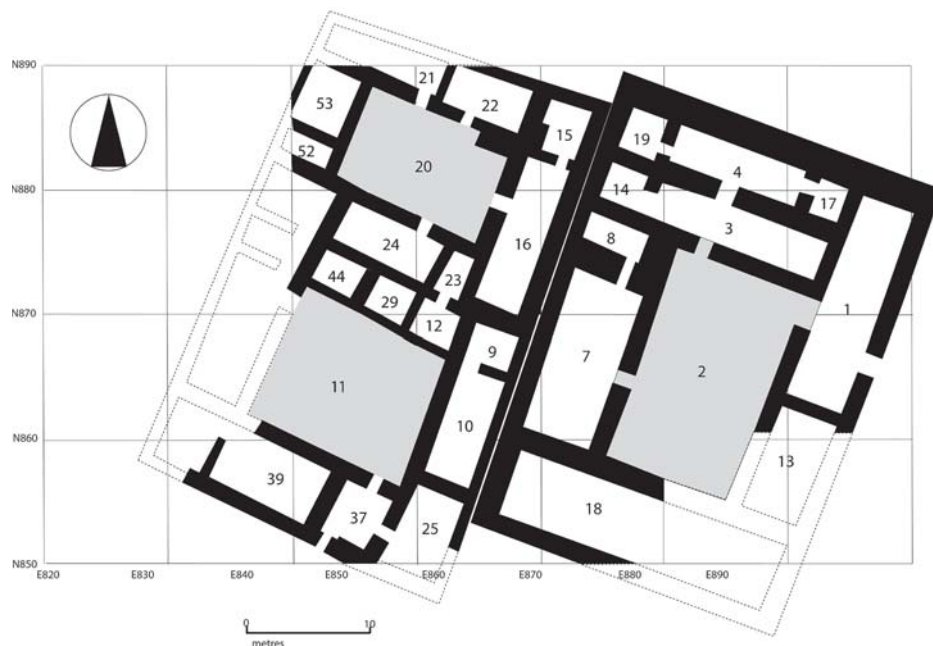


Fig. 17. Late Assyrian architecture in Operation G/R, 2001-2010.



## OPERATION W

Operation W is the designation given to some renewed investigations into specific features in the administrative complex excavated between 2001 and 2010 as Operations G/R (Fig. 17). In 2012 two trenches were excavated, comprising a re-investigation of Courtyard 11 (Trench 1) and a re-investigation of Room 10 (Trench 2). In 2013, work was resumed in Operation W with the aim of re-investigating Room 9 (Trench 3).

### Trench 1

The first trench was sited in the area of Courtyard 11. This is the southernmost of the two courtyards of Building 2, measuring 11 m (east-west) by 11.5 m (north-south). Courtyard 11 was one of three courtyards paved with black and white river pebbles laid in a checkerboard mosaic found in Operation G/R. On the whole, the pavement of Courtyard 11 was neatly laid but there were four areas where the pavement had been cut into and then relaid with much larger and rougher blocks (G-341, G-342, G-343, R-298). Our working hypothesis was that these were graves. In order to test this, we decided to excavate one of these features, choosing G-341 for this purpose. The stones were carefully removed and assembled in a cut of the same dimensions marked out

on the surface so that they could be relaid correctly upon conclusion of the work. The cut into the pebble mosaic was shored up with thin wooden planks secured by iron pins in order to prevent stones from the edge of the cut falling away. This removal of the upper stones revealed a layer of hard brown clay 30cm thick, initially devoid of inclusions but in its lower part containing pebbles and some potsherds. This then came down onto an



Fig. 18. Lower pebble pavement in Operation W, Sounding 1.

irregular pebble/cobble surface which in turn immediately overlay a much more substantial cobble surface which was well laid though not arranged in checkerboard squares in the manner of the upper pavement (Fig. 18). This was clearly the pavement of a major earlier phase and we decided to conclude the investigation at this stage, not wishing to cut into the earlier pavement and having demonstrated, at least, that these irregular features cut into Courtyard 11 are not graves. What they are remains unclear. Perhaps, surprisingly, they are simply repairs, if not overly elegant ones. Nevertheless this investigation produced an important result, the demonstration that a substantial earlier phase underlay the Operation G/R complex.



## Trench 2

The second trench excavated in Operation W was just to the east, sited in order to come down onto Room 10. This is the larger of the two rooms where tablets were found in earlier seasons. Based on the discovery from the first trench that there was a major earlier phase to the building, the aim of Trench 2 was to investigate whether evidence for administrative use could be recovered from this earlier phase. After removing the backfill, we excavated the remaining parts of the floor levels as they had been left in 2002 (north end of the trench) and 2003 (south end of the trench). The floor matrix consisted of red clay with patches of pebbles and cobbles set in, as well as fragments of bitumen (ZT 44029) and some patches of ash. In this matrix we found a cuneiform tablet (ZT 44030) and a possible sealing (ZT 44031). Removal of these surfaces brought us down onto a subfloor constructed of pink clay (W-011), which had a door socket (W-009) *in situ* on the western side. This was a very welcome discovery as the location of the door into Room 10 is something which we had not been able to establish in earlier seasons. Removing this packing exposed another surface (W-015), which consisted of a layer of broken mudbrick overlying the floor W-016, into which a pit for a *pithos* (W-013) had been cut, the rim was lined by a square of baked half-bricks (W-012). The soil from inside the *pithos* was taken and bagged for flotation and it is hoped that this may give information on the contents of the *pithos* and it will be interesting to see how this compares with the information derived from the tablets found in earlier investigations. The capacity of the *pithos* was 180 L. All these upper layers were associated with the later level of the complex. Excavating down further we reached the wall (W-019) and upper floor level (W-018) of the expected lower building phase. Below that floor level was a level of clay packing (W-020) which in turn overlay an even lower floor level (W-021). This lower level, which is on the same elevation as the lower cobble surface found in Trench 1, had a small door socket *in situ* (W-022) on the western side and was associated with a large number of *pithos* fragments, further evidence of the protracted use of this space in this capacity.

## Trench 3

In 2013 work was resumed in Operation W, this time focusing on Room 9, the smaller archive room of Building 2, with the aim of recovering a more complete picture of the architectural history of the complex. The removal of the backfill from the 2002 excavation (W-026) produced a spherical black bead (ZT 44090) while the cleaning of the floor as left in 2002 (W-027) yielded four baked clay tokens (ZT 44095). Below this was found a sub-floor packing comprising stones and large sherds (W-028) overlying a band (W-030) of ashy dirt mixed with clay and containing bones, sherds, brickbats and a baked clay disc (ZT 44109). This band overlay the solid foundation of the floor constructed of mudbricks of tough red clay (W-031). Removing this we came down onto the foundations of the walls of the upper phase which consisted of three courses of grey brick (W-035, W-036). These foundations were laid, somewhat irregularly, directly on top of the levelled walls of the underlying phase (W-032, W-037, W-038), indicating that the upper architecture was a rebuilding along the same lines as the lower and with no significant interval of time: in other words, the upper and lower phases together form one level. Salient to this point is that the *pithos* G-723 was clearly installed as

part of the earlier phase, but kept in use in the later phase as well. The walls of the lower phase defined a space measuring 1.75 by 3.5m, considerably smaller than the 2.95 by 3.60m of Room 9 above. Where exposed, these walls were faced with half-bricks measuring 40-42cm by 20-21cm; a bench or low platform edged with mudbrick ran along the western side of the room. A mudbrick platform W-040 measuring 0.80m wide and at least 1.50m long was built against the northern wall (W-037). Surface W-039 ran underneath this platform, indicating that it was a secondary installation. Below this surface was a levelling fill (W-041), a solid packing of broken brick, yielded a clay sealing (ZT 44116) and numerous flecks of red pigment (ZT 44133). Underneath all of this was a well preserved wall (W-046) of a yet earlier phase running north-south across the trench. The material on both the east (W-045) and the west (W-049) side of the wall comprised a very solid mudbrick packing with a trampled surface (W-042). No other associated surface was found, so that it appears that wall W-046 is preserved foundations only (to a height of 30 cm). There was, however, a surface of very tough grey clay with a large admixture of pebbles which ran underneath the wall, exposed on both the east (W-050) and the west (W-052) sides: this must either represent the surface of an even earlier phase or, perhaps more likely, a working surface laid down as part of the initial preparation of the site.

## OPERATION Y

Operation Y lies at the southwest edge of the lower town, to the west of the gateway in the city wall excavated at Operation Q and was excavated by Dr. Mary Shepperson (Matney et al 2009). It was intended to target an area of architecture, identified through geophysical survey, which lies adjacent to a point on the city wall where the wall appears to make a ninety degree turn. The city wall makes a further ninety degree turn in the opposite direction a short distance to the south west, to form a southward jog in the otherwise fairly uniform wall. There were indications in the geophysical survey of a large public building lying just inside the wall at Operation Y, which it was thought might relate to this interruption in the course of the city wall. An initial area of 20m by 10m was opened in 2013, comprising the grid squares N790E820 and N800E820. After the removal of the topsoil this area was reduced to 15m by 10m, abandoning excavation in the northern half of square N800 E820 due to time constraints. The recovered archaeology belonged to two main phases of activity: the Late Assyrian city wall and its associated architecture (Level Y2) and a later, probably Medieval, phase of pits, cobbled features and graves (Level Y1).

## Level Y1

Below the plough zone, a mixed fill of redeposited building and occupation debris was cut by a series of shallow pits of various size and shape. The largest pit (Y-011/Y-022) was roughly oblong, almost 4m in length and 50cm deep. Its shape suggests it was possibly two circular pits joined together. The fill (Y-012) contained a medieval glazed sherd suggesting the pit dates to this period or later. There was no obvious order to the layout of the pits and little can be said about their function. There was no identifiable surface from which they were cut

and the material with which they were filled contained only moderate amounts of pottery and animal bone with no other finds.

The only variation was in pits Y-020 and Y-026, which were found at a somewhat lower depth to the other pits and cut into the Assyrian architectural deposits below. These pits had an ashy fill with a higher concentration of pottery and animal bone, probably originating in the ashy layer Y-034 into which both pits intruded. It seems likely that Y-020 and Y-026 may be earlier in date than the other pits, probably being dug not long after the destruction of the Late Assyrian architecture. A large cobble lens Y-002 was found just below the plough zone by the eastern edge of the excavation. The excavated portion covered a semi-circular area approximately 3.5m wide which sloped gently downwards from south to north. It was formed of irregular rounded river cobbles of various sizes and had no firm edge but rather diminished from a central concentration, suggesting a dump of cobbles rather than a constructed surface or foundation, deposited on the debris which sloped down from the raised area of the underlying city wall. The final elements of the late phase of activity at Operation Y are four poorly preserved human burials found in the southeastern corner of the excavation, overlying and slightly cutting the remains of the Late Assyrian city wall. The four burials (Y-010, Y-013, Y-014 and Y-015) were very homogeneous in character; all were adults buried in an extended position, oriented east-west with the head at the west end and tilted onto their right sides so that they faced southward. The four graves formed a well-aligned rectangle, suggesting the graves were formally arranged in lines and rows and probably extend to the south of the excavation area. No burial goods were found in any of the four graves. Given their orientation, posture and lack of grave goods, a Medieval date seems most likely.

### **Level Y2: Late Assyrian Phase**

The main feature of the Late Assyrian period architecture in Operation Y is the lower town's city wall (Y-024). This intrudes into the southern half of square N790E820, running southwest-northeast from the southwest corner of the square, making a right-angled turn and running southeastward into the eastern section of the square. The city wall is very substantial at this point and, although the full width of the wall does not lie within the trench, it is at least 4.70m wide at this point. The manner in which the wall makes its ninety-degree turn is unusual. Rather than making a square corner by laying the square (35cm x 35cm) bricks in straight rows, the corner is constructed as a smooth curve with concentric rows of bricks fanning out to make the turn. On the inside of the curve, which is the exterior of the city wall, the bricks appear to start fanning in the opposite direction, suggesting that the angle of the wall was reinforced with curving brickwork to form an almost circular junction (Fig. 19). A remote possibility is that this could be the base for a circular tower or buttress, but this remains unlikely in the rectilinear context of Late Assyrian architecture. The bricks of the city wall vary in color, composition, and quality. The majority of the bricks are fairly well made from a fine, hard, pale greyish-brown, silty clay, but poorer-quality bricks are interspersed within the wall, made of courser reddish and greyish clays and softer, siltier material. The mortar which binds the bricks together also varies but is most commonly a fine grey mud plaster, although a material similar to the course, reddish clay found in the nearby natural deposits is also frequently found.

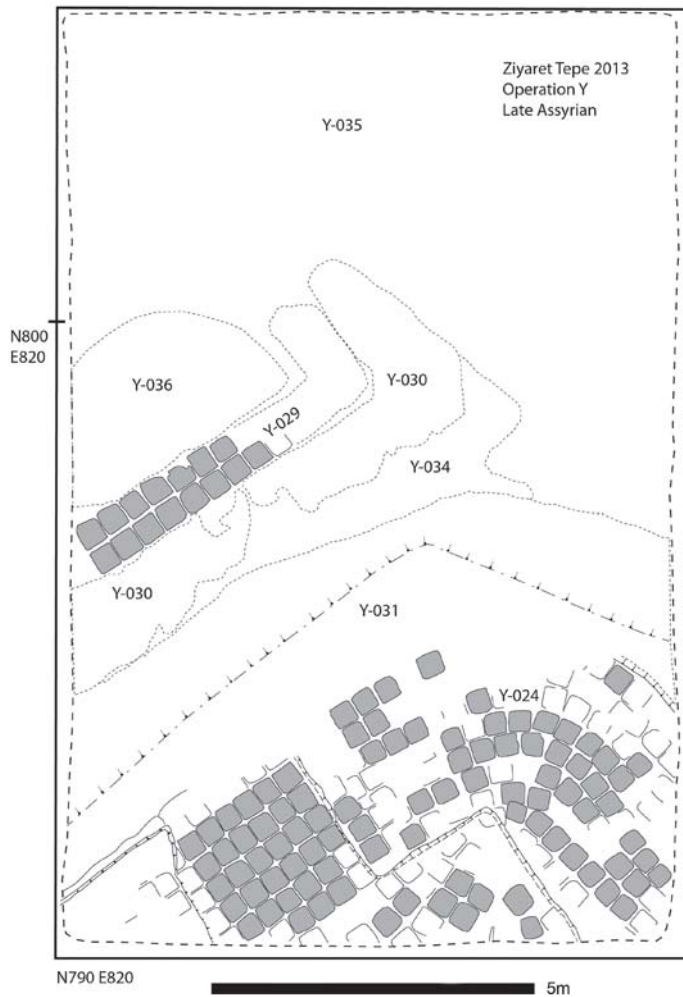


Fig. 19. Late Assyrian architecture, Level Y2.

A possible explanation of why the Assyrian builders chose to construct a curved rather than a square corner is that a roadway was intended to run around the inside of the wall. An extremely hard-packed clay-rich deposit (Y-031) runs against the curve of the wall in a 2.40m wide strip. The heavily compacted clay contains frequent small-medium sized pebbles and a moderate number of potsherds, making it a very hard, durable construction. The placement of a roadway along the inside of the wall would have brought traffic to and from the Operation Q gate and in emergencies it would have allowed troops and supplies to move along the city wall for the better defense of the gateway. A curved bend rather than a sharp corner here would have greatly eased the passage of people, animals and wheeled vehicles. It is inter-

esting to note that a similar gap between the city wall and the adjacent architecture was present in the area excavated in Operation K.

The only other element of Late Assyrian architecture preserved in Operation Y is the mudbrick wall (Y-029) of a building, which runs parallel to the northwest internal face of the city wall in the western part of the trench. At about the point where the city wall turns back to the southeast, wall Y-029 makes a right-angled corner turning in the opposite direction towards the northwest, although only traces of this corner survive. The mudbricks at the western end of wall Y-029 are very well preserved and show the wall to be made of two rows of large complete mudbricks, 40cm x 40cm square, laid in a fine plaster mortar, making a wall 85cm wide. As they run eastward the bricks become less well preserved, becoming only traces of brick material by the point where the wall turns the corner, after which the line of the wall is only preserved as a foundation cut. It seems that only one course of this wall survives, suggesting

that the building was deliberately levelled after it fell out of use. The foundation trench for wall Y-029 is cut through a deposit of tough reddish clay with frequent white chalky inclusions. This deposit, which is found on both sides of wall Y-029, seems to be re-deposited natural clay used to prepare a level area for the construction of the Y-029 building. This levelling layer was probably necessary because the deposit below, which runs under wall Y-029, was a soft ashy fill (Y-034) mixed with mudbrick lumps, rich in pottery and animal bones and generally unsuitable for the foundation of a building. It seems that after the completion of the city wall and the roadway (Y-031), the area immediately inside the wall consisted of mixed building rubble and ashy rubbish dumps. This area was then levelled and the ashy deposit capped with the layer of reddish clay (Y-030) before the foundation of wall Y-029 and the rest of this building was cut into it. In a later phase, this building seems to have been destroyed and levelled leaving only these traces of its foundation. There is no trace of later building activity so the area was probably left as open space inside the city wall.

### **Summary: Operation Y excavations**

Although little of the building inside the city wall remained, the organization of the Assyrian architecture here displays some important features. Most notable is the emphasis on defensive features at this key point near a major gateway. Firstly, the double bend in the city wall, of which the wall at Operation Y forms one half, seems to serve little purpose except to provide a stretch of wall between the two corners which faces towards the Operation Q gateway; this would have allowed defenders a better angle to aim arrows, sling stones, and any other projectiles down onto the flank of an enemy attacking the gateway. The provision of a reasonably wide roadway along the inside face of the wall also seems to be aimed more towards the movement of troops and equipment along the city's defensive perimeter than the general movement of goods and people, which in most contemporary city plans tends to be primarily radial, between the periphery and the centre. The care taken to construct a curved corner in the city wall at Operation Y suggests that the easy movement of traffic along this route was considered of some importance in order to merit such an unusual arrangement. The width of the wall and the extra buttressing at this corner also suggest a significant concern with defense here. Defensive concerns may even possibly account for the destruction and levelling of the building inside the curve of the wall, which is unusual in the lower town where demolished buildings are generally built over with new structures. Even with the unusual curve, the right-angled turn in the roadway behind the city wall would have constituted an awkward bottleneck where traffic was forced to slow to take the turn. It is possible that the building inside the wall was not rebuilt in order to provide greater space here for people, animals and vehicles to pass and make movement along the wall easier.

### **OPERATION Z**

Operation Z, the last of the archaeological investigations to be undertaken at Ziyaret Tepe, was the designation for a 5m by 5 m trench located in grid square N810E840, a short distance northeast of Operation Y. The aim of Operation Z was to ground truth the existence

of a building whose outline appeared on the resistivity plot of the area from 2006 (Matney et al. 2007: 48, 73 fig. 22). Excavation was carried out in the 2013 season directed by Dr. John MacGinnis and assisted by Daniella Arroyo.

Having removed the topsoil, the first feature encountered in Operation Z was a wall running northeast-southwest across the southern half of the trench, preserved for a length of 3.5 m, with a curious facing of stones and potsherds set on edge (Z-002), and with an associated floor with a thin red plaster surface (Z-008) laid on a sub-floor packing (Z-010) of red clay on the southeastern side. The stone and pottery facing lay directly against a larger mud brick (wall Z-005) which belongs to an earlier phase of occupation. This wall was 1.80m wide and made of bricks measuring 38-40cm square. The wall was not very well preserved and in some places difficult to follow, but in any case defined on the southeastern side by the red plastered surface Z-008 and to the northwest by a rough stone pavement containing fragments of plaster, pottery and animal bones (Z-009). Underneath this was a zone of alternating bands of broken red brick and layers of ash. Below this level, a stone foundation (Z-014) was identified running NW-SE and continuing under wall Z-005, and to the north of this were the fragmentary remains of a white plastered floor (Z-019).

The work in Operation Z succeeded in its primary aim of ground-truthing the architecture visible in the resistivity mapping of 2006, which appeared as a substantial wall exactly where expected. This wall was clearly Late Assyrian in date. In addition to this, the work in Operation Z yielded evidence for a subsequent occupation of a more modest nature which reused the main Assyrian wall and must as a consequence be either Late Assyrian or immediately post-Assyrian in date.

#### ARCHAEOBOTANICAL REPORTS

As noted above, systematic collection of paleofaunal and zooarchaeological samples was standard procedure at the Ziyaret Tepe and an exceptionally rich and robust dataset exists for most Operations and time periods. Below, the preliminary results of two studies are reported: a summary of the Late Antique samples from Operations T and U by Lucas Proctor and the Late Assyrian samples from Operation Q, excavated prior to 2011 by Dr. Melissa Rosenzweig.

Sample processing and identification followed methods previously established for the Ziyaret Tepe archaeobotanical assemblage by Rosenzweig (Matney et al. 2011). All sediment samples were processed using a Siraf-type flotation machine by Rosenzweig and Mr. Suphi Kaya, using 1mm and 355µm mesh to recover heavy and light fractions, respectively. In order to facilitate easier sorting and identification, all samples were divided into four size grades using 2mm, 1mm, and 500µm nested sieves and larger samples were further subdivided using a riffle splitter. Grades greater than 1mm were fully sorted, while grades less than 1mm were scanned until no further identifiable specimens could be retrieved. Fragments of wood charcoal were separated and weighed in grades above 1mm and saved for later analysis. A Leica EZ4 optical microscope with a maximum magnification of 35× was used for all sorting and identification. Plant remains were identified to the genus or species level (when possible) based on Rosenzweig's modern reference collection and the UConn Archaeobotanical Reference Collection, as



well as several reference guides, including Nesbitt (2006), Cappers, Neef, and Bekker (2009), Martin and Barkley (1961). After identification and quantification of the sorted material from all samples, analysis of the assemblage was conducted using simple quantitative measures, including ratios, density, diversity, proportion, and ubiquity, commonly applied in archaeobotanical research (Miller 1988; Popper 1988; Pearsall 2000).

### Late Antique Archaeobotanical Report (L. Proctor)

This report presents the results of an archaeobotanical analysis of twenty-nine samples from the 5<sup>th</sup> to 8<sup>th</sup> centuries AD at Ziyaret Tepe. While comparatively little research has been conducted on archaeobotanical remains from Late Antique contexts throughout Anatolia (Marston and Miller 2014), historical and textual evidence has highlighted a dramatic population growth supported by heavy economic development and intensive agricultural production during late antiquity, especially in Southeastern Turkey and the Levant (Decker 2007; 2009). Survey work conducted by Algaze in the upper Tigris River Valley has supported this by finding evidence for heavy settlement along the Tigris River during this period, with sites lining both

| ZT #   | Locus | Context Type | Context Description   | Soil Vol. L | NSP | Density (NSP/L) | SW diversity index |
|--------|-------|--------------|-----------------------|-------------|-----|-----------------|--------------------|
| 46041  | K-105 | Primary      | Feature Construction  | 4           | 62  | 15.50           | 0.550              |
| 39118  | T-017 | Primary      | Pit contents          | 10          | 18  | 1.80            | 0.961              |
| 39218  | T-031 | Primary      | Floor/surface         | 22          | 29  | 1.31            | 1.062              |
| 39225  | T-031 | Primary      | Floor/surface         | 24          | 29  | 1.20            | 1.449              |
| 37711* | T-046 | Primary      | Floor/surface         | 0.1         | 1   | 10.00           | N/A                |
| 37712* | T-046 | Primary      | Floor/surface         | 0.05        | 0   | 0.00            | N/A                |
| 39190  | T-046 | Primary      | Floor/surface         | 22          | 83  | 3.77            | 0.572              |
| 39366  | T-046 | Primary      | Floor/surface         | 9           | 13  | 1.44            | 1.301              |
| 39302  | T-046 | Primary      | Floor/surface         | 9           | 48  | 5.33            | 1.304              |
| 39293  | T-057 | Primary      | Pit contents          | 11          | 354 | 32.18           | 2.042              |
| 39278  | T-058 | Primary      | Pit contents          | 9           | 5   | 0.56            | 1.332              |
| 37715* | T-064 | Primary      | Floor/surface         | 0.15        | 4   | 26.67           | 0.000              |
| 37709  | T-064 | Primary      | Floor/surface         | 0.1         | 3   | 30.00           | 0.637              |
| 40044  | U-004 | Primary      | Floor foundation/wall | 28          | 51  | 1.82            | 1.375              |
| 40065  | U-007 | Secondary    | Pit contents          | 29          | 89  | 3.07            | 1.413              |
| 40066  | U-008 | Secondary    | Pit contents          | 29          | 213 | 7.35            | 1.332              |
| 40063  | U-009 | Secondary    | Pit contents          | 10          | 7   | 0.70            | 0.956              |
| 40064  | U-010 | Secondary    | Pit contents          | 21          | 56  | 2.67            | 2.081              |
| 40067  | U-011 | Secondary    | Pit contents          | 33          | 116 | 3.52            | 0.804              |
| 40077* | U-012 | Secondary    | Pit contents          | 1           | 2   | 2.00            | N/A                |
| 40069  | U-012 | Secondary    | Pit contents          | 17          | 41  | 2.41            | 0.939              |
| 40068  | U-013 | Secondary    | Pit contents          | 25          | 181 | 7.24            | 1.623              |
| 40085  | U-018 | Secondary    | Pit contents          | 19          | 49  | 2.58            | 1.100              |
| 40130  | U-020 | Primary      | Floor/surface         | 9           | 8   | 0.89            | 0.377              |
| 40093  | U-021 | Primary      | Pit contents          | 18          | 16  | 0.89            | 0.822              |
| 40125  | U-032 | Secondary    | Construction fill     | 25          | 96  | 3.84            | 0.924              |
| 40198  | U-037 | Primary      | Floor/surface         | 24          | 62  | 2.58            | 1.427              |
| 40269  | U-071 | Secondary    | Pit contents          | 19          | 687 | 36.16           | 1.534              |
| 40410  | U-071 | Secondary    | Pit contents          | 1           | 45  | 45.00           | 1.591              |

Fig. 20. Description of all samples examined, including pre-flotation soil volume (L), Total number of specimens (NSP), density of remains (NSP/L), and Shannon-Weaver (SW) diversity index (see Popper 1988). \* denotes samples that are sterile or contain only indeterminate remains.

banks from Batman Su to the modern city of Bismil. (Algaze et al. 1991: 184). The following analysis situates the Late Antique occupation at Ziyaret Tepe within the context of regional agricultural and economic intensification and population growth during this period, despite its comparatively small size.

Twenty-nine Late Antique sediment samples were collected for archaeobotanical analysis during the 2011-2013 excavation seasons at Ziyaret Tepe (Fig. 20). Sediment sampling strategies followed the protocols established by Matney and Rainville in 2000. Samples were collected from pit and floor contexts in volumes ranging between 0.05 and 33 L. Twelve sediment samples were collected by Dr. Kemalettin Köroğlu during excavation of Operation T. The Late Antique component of Operation T consisted of a building (T-031/T-064) with an adjacent cobble-surfaced courtyard (T-047). Samples were taken from associated surfaces, as well as three large pits. Similarly, sixteen sediment samples were collected by Dr. John MacGinnis during the excavation of Operation U. Operation U contained two phases of construction with a northern building (U-004, U-020, U-037) separated from exterior surfaces by two walls. One additional Late Antique sample was recovered from Operation K in 2013, which contained the contents of a ceramic drain pipe.

### *Sample Composition*

The Late Antique samples yielded 2368 specimens, of which 1126 were identifiable plant remains (Fig. 21). The remaining 1242 specimens were heavily damaged, indeterminate fragments of carbonized remains which could not confidently be assigned to any taxonomic group. Poor preservation limited the identification of specimens in all cases, and, overall, intact and well-preserved specimens were rare. Sample density was generally low, with a median of 8.71 NSP/L (Fig. 20). Most samples contained only a small number of identifiable taxa, though two samples, ZT 39293 and ZT 40269 both contained over 200 identifiable specimens. Sample diversity, an index of richness of and evenness of species within samples (Pearsall 1983; Popper 1988), is generally low, indicating that taxa occur both infrequently and in varying quantities within samples (Fig. 20).

The overall proportions of major taxa categories (cereal, weeds, etc.) are broadly comparable between Operations T and U despite being separated by nearly 300 meters and containing different numbers of pit and surface contexts. Pit and floor contexts had unique archaeobotanical signatures, indicative of the different depositional histories and formation processes unique to these context types. Pit deposits are typically the result of continual amalgamation of multiple activities, such as crop processing, hearth clearing, and trash burning, while surfaces ought to contain limited quantities of remains due to both limited depositional events and the deleterious effects of cleaning and trampling (Miksicek 1987; Hubbard and Clapham 1992; van der Veen 2007). Thirteen of the samples represented floor contexts. There were only three surface samples collected from Operation U, while there were ten from Operation T. Samples within the structure in Operation T (T-031, T-064) contained a greater proportion of weeds and non-cereal crops with no cereal chaff, while surface samples from the courtyard (T-046) contained cereal chaff and grain but few economic plants. It is notable that a clear difference in composition is present between the interior of the structure, which contained non-cereal crops and a greater proportion of weedy taxa, compared to the samples from the courtyard

which contained crop processing debris and a greater proportion of cereals (Fig. 22a). Pits represented the majority of the samples collected and were comparatively the richest contexts in the assemblage. Samples from pit contexts yielded, on average, 144.4 specimens per sample, though sample richness was uneven (Diversity: Low = 0.80; High = 2.08). Compared to floors, pits contained a greater proportion of cereal remains and lower proportions of pulses, other economic taxa, and weeds.

One sample from Operation U, ZT 40269, was exceptionally rich in botanical remains. ZT 40269 was taken from pit U-071, located between the two Late Antique walls. It contained 687 specimens, 317 of which were identifiable, which makes up nearly 30% of the entire assemblage. The identifiable specimens were composed of 75% cereal grains, as well as 23% weeds and 2% of chaff. Weeds were particularly diverse, containing 24 taxa. A small burnt bead was recovered from the sample, which could suggest that the contents of the pit were burned *in situ* with other trash.

There are many possible routes leading to the inclusion of plant remains in the archaeological record, including food use/discard, crop processing activities, and the use of dung as fuel (Miller and Smart 1984; Charles 1998; van der Veen 2007). It is probable that some combination of several of these processes contributed to the formation of this assemblage. However, it is argued here that this assemblage primarily derived from the burning of dung as a supplement to scarce wood fuel resources (following Miller and Smart 1984; Miller 1996; Charles 1998), as evidenced by a high seed/charcoal ratio (97.27 ct/g) and low wood charcoal densities (average of 0.16 g/mL of material). While there were few dung fragments recovered from the specimens, the use of dung fuel is ubiquitous in the area today and there is evidence that it was used in earlier Assyrian contexts at Ziyaret Tepe (Rosenzweig 2014). Furthermore, the heavily damaged nature of the recovered plant remains may be indicative of partial digestion. However, the overall cultigen/non-cultigen ratio, which has been used as an indicator of dung fuel usage (Miller & Smart 1984) is very high (3.70), contrary to expected results for dung fuel usage.

## Results

Cereal grains were the most abundant plant remains, making up 57% of the identifiable assemblage (Fig. 22b). Wheat (*Triticum* sp.), including both free-threshing (*T. aestivum*/*T. durum*), and some hulled (*T. monococcum*/*T. dicoccum*) varieties, were most abundant (n = 58) and occurred in 36% of samples. Free-threshing wheat greatly outnumbered hulled wheat, suggesting that it was the preferred wheat crop (Table 2). Barley (*Hordeum* sp.) has 28% ubiquity and is as abundant as free-threshing wheat. In addition to wheat and barley, oat (*Avena secale*.) and rye (*Secale* sp.) both appear in the assemblage, albeit in very small quantities; only three oats and one rye grain were recovered. Large, indeterminate cereal grain fragments constituted the bulk of the cereal specimens (n=548) and were found in 80% of samples. Given that free-threshing wheat and barley were the most commonly encountered cereal varieties, it is likely that most of the indeterminate fragments come from these taxa. Cereal processing debris and chaff contributed to 17% of the identifiable assemblage (n=193). Wheat chaff was the most abundant and frequently encountered chaff, having a ubiquity of 36% of all samples, and included *Triticum* sp. rachis, *Triticum* sp. spikelet fork, *Triticum* sp. glume/base, *T. mono-*

*coccum* spikelet fork, *T. durum* rachis, *T. aestivum* rachis, and indeterminate free-threshing wheat rachis. *Triticum* sp. rachis (n=26) and free-threshing wheat rachis (n=22) were most abundant types of chaff. *Hordeum* sp. processing debris was also present, but occurred in only three samples.

Free-threshing wheat and barley appear to have been the primary staple crops produced at Ziyaret Tepe during the Late Antique. Free-threshing wheat would have been produced exclusively for human consumption, while barley may have been produced for human consumption as food or beer, fodder for animals, or a combination of both (Miller 1996). The degree to which hulled wheat, rye, and oat were locally consumed/produced at Ziyaret Tepe is unknown. Their limited presence in this assemblage is curious, but little can be said about their importance without further evidence.

Economic legumes constituted a very small percentage of the identifiable Late Antique plant assemblage at Ziyaret Tepe (Fig. 22b). A total of 22 specimens of pulse crops (2% of the identifiable assemblage) were found in nine samples (Fig. 21). Most of the Late Antique specimens came from pit features, likely as part of burnt refuse or hearth sweepings. Bitter vetch (*Vicia ervilia*) was the most abundant pulse, with twelve specimens overall, eleven of which were found in ZT 39293. Bitter vetch is a common and early domesticate in southwest Asia, though its use as an economic taxa has sharply declined. Today it is primarily used as animal fodder, but in the past, bitter vetch was used as a famine crop, because of its bitter taste and toxicity (Helbaek 1961; Zohary et al. 2012). Other legumes recovered include a single specimen of pea (*Pisum sativum*) from a pit in Operation U and a chickpea (*Cicer arietinum*) from the ceramic pipe in Operation K. Six indeterminate large legumes were also recovered.

Economic taxa other than cereals and pulses contributed to less than 2% to the identifiable plant assemblage. Of these taxa, indeterminate nut shell fragments were most abundant (Fig. 21), however, the shell was too fragmentary for any specific taxonomic identification. Three specimens of grape (*Vitis vinifera*) were recovered from three samples. Each specimen occurred individually, and in different contexts (floor, pit, and drain pipe). Fig (*Ficus* sp.) occurs very infrequently in the assemblage, being represented by only three specimens from two samples. Finally, one mineralized hackberry (*Celtis* sp.) was also recovered from a ceramic drain pipe found in Operation K.

Weeds taxa contributed, in total, 22% of the identified plant assemblage, and were present in all but two of the analyzed samples. There were 47 identified taxa from a variety of different families, genera, and species (Fig. 21). Individual taxa occurred infrequently and in low numbers. Much of the weed data derived from ZT 40269, which produced 24 different weed taxa. Throughout the Late Antique assemblage, the most commonly recovered taxa were steppe weeds, which comprised 52% of the weed assemblage and 11% of the total identifiable assemblage. Timothy grass (*Phleum exaratum*) was the most frequently occurring steppe weed (48% ubiquity). One unknown grass species, "Grass 001" was also frequently recovered (40% ubiquity), often co-occurring with timothy grass. Steppe weeds grow in the dry slopes and uplands surrounding the Tigris River Valley, rather than near to the settlement or in fields. Thus, the most likely vector for steppe weeds to have been deposited in the archaeobotanical record is through the pasturing of livestock in these areas, which further supports the use of dung fuel.

| Ecological status | Taxa                                   | NISP | Ubiquity (%) | Ecological status                 | Taxa                        | NISP | Ubiquity |
|-------------------|--|------|--------------|-----------------------------------|-----------------------------|------|----------|
| Cereals           | <i>Triticum</i> sp.                    | 14   | 8            | Steppe weeds                      | ASTERACEAE                  | 5    | 12       |
|                   | <i>Triticum monococcum</i>             | 1    | 4            |                                   | <i>Anthemis arvensis</i>    | 1    | 4        |
|                   | <i>T. dicoccum</i>                     | 7    | 8            |                                   | <i>Anthemis</i> sp.         | 1    | 4        |
|                   | <i>T. durum/aestivum</i>               | 36   | 32           |                                   | Small legume indet.         | 61   | 52       |
|                   | <i>Hordeum</i> sp.                     | 36   | 28           |                                   | <i>Astragalus</i> sp.       | 15   | 32       |
|                   | <i>Avena</i> sp.                       | 3    | 8            |                                   | <i>Medicago</i> sp.         | 3    | 12       |
|                   | <i>Secale cereale</i>                  | 1    | 4            |                                   | <i>Trifolium</i> sp.        | 1    | 4        |
|                   | Cereal grain indet.                    | 548  | 80           |                                   | <i>Trigonella astroites</i> | 2    | 8        |
| Processing Debris | <i>Triticum</i> sp. rachis             | 26   | 20           |                                   | <i>Trigonella</i> sp.       | 2    | 8        |
|                   | <i>Triticum</i> sp. spikelet fork      | 2    | 8            |                                   | <i>Malva</i> sp.            | 6    | 4        |
|                   | <i>Triticum</i> sp. glume/base         | 3    | 8            |                                   | PAPAVERACEAE                | 2    | 4        |
|                   | <i>T. monococcum</i> spikelet fork     | 1    | 4            |                                   | <i>Phleum exaratum</i>      | 27   | 48       |
|                   | <i>T. durum</i> rachis                 | 3    | 4            |                                   | <i>Stipa</i> sp.            | 1    | 4        |
|                   | <i>T. aestivum</i> rachis              | 1    | 4            |                                   | <i>Verbascum</i> sp.        | 2    | 8        |
|                   | <i>T. durum/aestivum</i> indet. rachis | 18   | 4            | Wetland weeds                     | CYPERACEAE                  | 4    | 8        |
|                   | <i>Hordeum</i> sp. rachis              | 4    | 12           |                                   | <i>Carex</i> sp.            | 3    | 8        |
|                   | cereal spikelet fork indet.            | 1    | 4            |                                   | <i>Cyperus rotundus</i>     | 8    | 8        |
|                   | Cereal glume indet.                    | 99   | 44           |                                   | <i>Eleocharis</i> sp.       | 1    | 4        |
|                   | Cereal rachis indet.                   | 22   | 36           |                                   | POLYGONACEAE                | 2    | 4        |
|                   | Cereal culm                            | 10   | 12           |                                   | <i>Rumex</i> sp.            | 1    | 4        |
| Pulses            | Cereal awn                             | 1    | 4            | Catholic and non-diagnostic weeds | APIACEAE                    | 1    | 4        |
|                   | Cereal embryo                          | 1    | 4            |                                   | CAROPHYLLACEAE              | 1    | 4        |
|                   | <i>Cicer arietinum</i>                 | 1    | 4            |                                   | <i>Capparis</i> sp.         | 1    | 4        |
|                   | <i>Lathyrus/Vicia</i> type             | 2    | 8            |                                   | CHENOPODIACEAE              | 7    | 8        |
|                   | <i>Vicia ervilla</i>                   | 12   | 8            |                                   | <i>Chenopodium</i> sp.      | 1    | 4        |
| Other Crops       | <i>Vicia sativa</i>                    | 1    | 4            |                                   | CRUCIFERAE                  | 13   | 16       |
|                   | Large legume indet.                    | 6    | 16           |                                   | <i>Brassica</i> sp.         | 1    | 4        |
|                   | <i>Celtis</i> sp.                      | 1    | 4            |                                   | <i>Galega</i> sp.           | 2    | 4        |
|                   | <i>Ficus</i> sp.                       | 3    | 8            |                                   | LAMIACEAE                   | 5    | 16       |
| Field weeds       | <i>Vitis vinifera</i>                  | 3    | 12           |                                   | POACEAE                     | 1    | 4        |
|                   | Nut shell                              | 11   | 16           |                                   | Small grasses indet.        | 16   | 24       |
|                   | <i>Anagallis</i> sp.                   | 1    | 4            |                                   | <i>Sporobolus</i> sp.       | 1    | 4        |
|                   | <i>Camelina sativa</i>                 | 1    | 4            |                                   | Unidentified Grass 001      | 24   | 40       |
|                   | <i>Cephalaria</i> sp.                  | 3    | 4            |                                   |                             |      |          |
|                   | <i>Fumaria</i> sp.                     | 1    | 4            |                                   |                             |      |          |
|                   | <i>Galium</i> sp.                      | 6    | 12           |                                   |                             |      |          |
|                   | <i>Glaucium</i> sp.                    | 1    | 4            |                                   |                             |      |          |
|                   | <i>Lolium</i> sp.                      | 7    | 20           |                                   |                             |      |          |
|                   | <i>Silene</i> sp.                      | 2    | 8            |                                   |                             |      |          |
|                   | <i>Vaccaria</i> sp.                    | 2    | 8            |                                   |                             |      |          |

Fig. 21. Summary of identifiable taxa from Late Antique samples. Number of identifiable specimens (NISP) and ubiquity (percent of samples containing taxa) are reported.



Wetland adapted weeds, such as *Cyperus* sp., *Eleocharis* sp., and *Carex* sp. were recovered in 28% of samples, but comprised only 8% of the total weed assemblage (Fig. 21). Wetland adapted weedy taxa often have been used as evidence for irrigation (Marston 2011; Marston and Miller 2014: 766-767). However, while wetland taxa were present in the Late Antique assemblage, they occurred in insufficient numbers to state conclusively that irrigation was practiced. Irrigation canals have yet to be observed in the vicinity of Ziyaret Tepe, though irrigation is ubiquitous in the Tigris Valley today and Late Antique irrigation works have been observed regionally (Decker 2007).

Field weeds comprised 10% of the total weed encountered. Bedstraw (*Galium* sp.), a large and easily recognizable field weed commonly encountered in archaeobotanical assemblages, was observed in three of the samples. Three *Cephalaria* sp., a bitter, noxious weed were recovered from ZT 40269. Miller (1998: 240) and van Zeist and Bakker-Heeres (1985:254) note that *Cephalaria* is not commonly encountered in archaeological deposits before historic periods, becoming increasingly common in Classical and Medieval contexts. Large field weeds, such as *Cephalaria* and bedstraw would have been handpicked from grain stores, because their large size and shape prevent their removal during bulk crop processing activities (cf. Jones 1984). They could have either been directly discarded or given as fodder with other crop processing remains.

Finally, 30% of the weed assemblage can be categorized as catholic/non-diagnostic taxa (Fig. 21). These taxa are found across ecological zones, and many can be considered ruderal. Specimens belonging to the *Cruciferae* (mustard) and *Lamiaceae* (mint) families are well-represented in the assemblage. Both families were present in 20% of samples. Many members of these plant families have culinary and medicinal uses. However the low abundances limit any discussion of possible uses as herbs (cf. Behre 2007).

#### *Summary: Late Antique Archaeobotany*

The evidence presented in this study indicates that wheat was the major staple crop produced at Ziyaret Tepe during the Late Antique occupation. The ratio of wheat to barley (1.61) contrasts sharply with the results from the Late Assyrian (ca. 900-600 BCE) occupation at Ziyaret Tepe, where barley was strongly favored (Rosenzweig, 2014). This suggests that an important shift in local land use patterns occurred during the Late Antique period. According to contemporary Byzantine written accounts, free-threshing wheats, such bread (*T. aestivum*) and macaroni wheat (*T. durum*) were the most desirable and economically valuable variety of grain in the Late Antique East, followed by hulled wheat (see Decker 2009: 80-112). Barley, which was the second most frequently encountered economic taxa in the Late Antique assemblage, was considered inferior to wheat by Byzantine authors because it produced bread of poor quality. (Decker 2009: 80-112). Thus, with the preponderance of wheat in the Late Antique samples examined, it seems unlikely that barley would have been intended for human consumption. Barley may have been produced as a fallback crop, however, given its lower water requirements, in order to mitigate the risks associated with droughts and crop failure. Ethnographic accounts from the Eastern Mediterranean have demonstrated that free-threshing wheat and barley were often grown together as a maslin crop, in order to protect against total crop failure (Jones, 1990; Jones and Halstead 1995). However, this interpretation is difficult

to prove (e.g. van der Veen 1995), and the data presented here are inconclusive. A more convincing case can be made for the use of barley as animal fodder. Low ratios of weeds to cereals has been previously argued as evidence for livestock foddering, assuming dung fuel usage is also evident (Miller 1996; Marston 2011). At Ziyaret Tepe, the overall ratio of weeds to cereals is quite low (0.280), which supports the foddering of animals, since many of the remains are assumed to be coming from dung fuel sources. Supplementing grazing with barley and chaff would allow for the production of livestock above the carrying capacity of the available land. This would have a useful strategy for dealing with high regional population levels and pressure on land availability, as has been suggested by Decker (2009: 29-79).

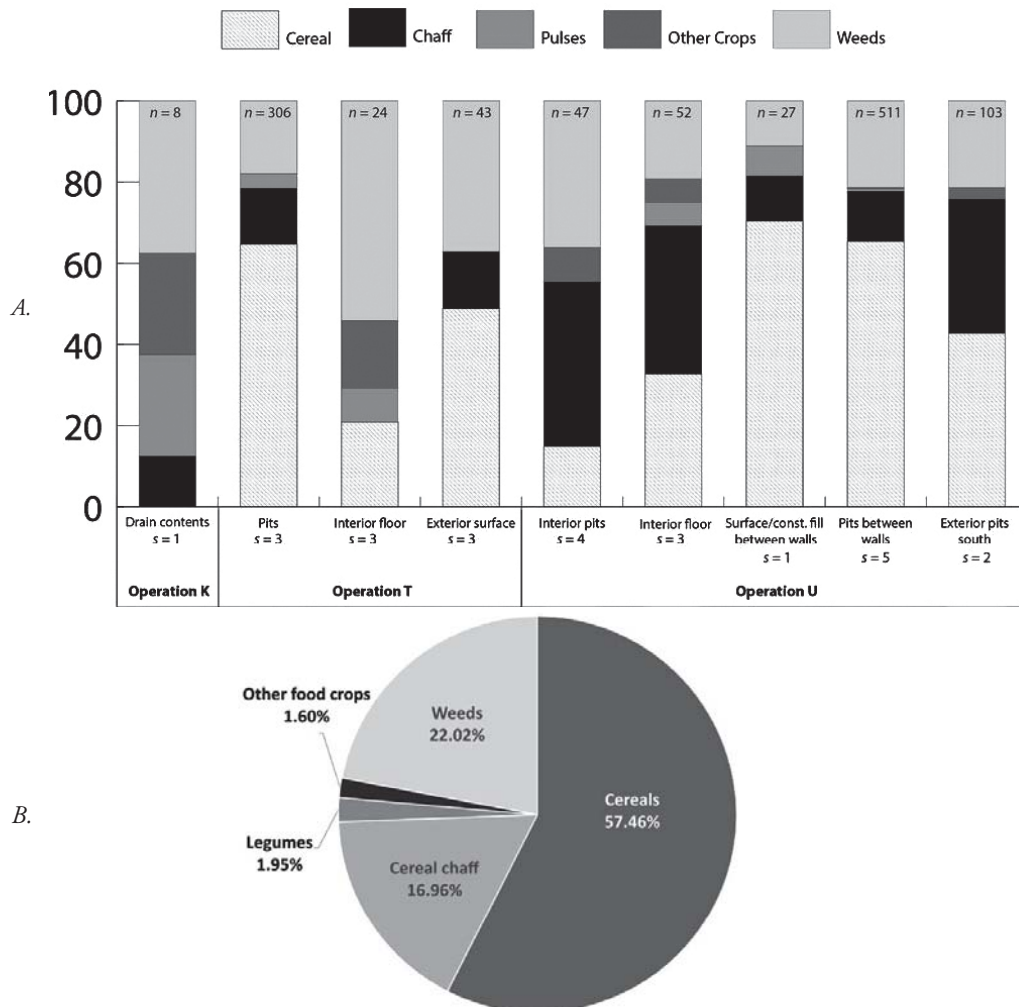


Fig. 22. a: 100% stacked bar chart depicting proportion (%) of major taxa categories by contexts. n = number of specimens; s = number of samples.

b: Pie chart summarizing the major categories of taxa identified in the Late Antique archaeobotanical assemblage.

Non-cereal crops, including sweet pea (*Pisum sativum*), bitter vetch (*Vicia ervilia*), chickpea (*Cicer arietinum*), hackberry (*Celtis* sp.), fig (*Ficus* sp.), and grape (*Vitis vinifera*), may well have been important parts of local diet. Because the depositional and taphonomic processes that create charred botanical assemblages frequently select against the preservation of these taxa (van der Veen 2007), the relative importance of non-cereal economic taxa are often underestimated. Additionally, other crops, such as olive, flax, melons, and dates, are conspicuously absent, despite their established economic importance in the Eastern Mediterranean both before and during Late Antiquity (see Zohary et al. 2012). These crops are ubiquitous in the Tigris Valley today, and are represented in many of the other Late Roman/Byzantine sites throughout the Eastern Mediterranean for which there are published archaeobotanical data (Helbaek, 1961; Ramsay, 2010; Kaptijn et al., 2013; Ramsay & Smith, 2013). The Ziyaret Tepe assemblage, as a whole, displays considerably less variety in terms of economic taxa than other sites from the same time period. This lacuna may hint at the socio-economic realities of the inhabitants of the small settlement at Ziyaret Tepe, who, in order to navigate high taxes and demand for land created by a dramatic expansion of population in the Eastern Mediterranean (Decker 2009: 29-79), may have chosen to focus their productive efforts on intensively cultivating high-value wheat crops at the expense of crop variety.

In conclusion, these results provide important insights into the plant use and crop husbandry of Late Antique settlements in Southeastern Turkey. Emphasis on the production of highly valued free-threshing wheat and the foddering of livestock during late antiquity suggests a dramatic shift in land use at Ziyaret Tepe to a high-risk, high-reward strategy concurrent with a regional florescence of economic activity during late antiquity, as argued by Decker (2009). Foddering and indirect evidence for irrigation suggest a variety of possible means by which inhabitants could have attempted to increase the productive output of their land. This intensification can be interpreted to be the result of the economic pressures placed on small local communities by a large regional population in the Eastern Mediterranean during late antiquity.

### **Operation Q Archaeobotanical report (M. Rosenzweig)**

The preliminary results presented below comprise data from soil samples collected from a city gate located in the lower town of Ziyaret Tepe, on the site's southwestern side, dubbed the 'Khabur Gate' by excavators. Excavation of this structure ran from 2007 to 2009 under the direction of Dr. John MacGinnis. During these three field seasons, excavators exposed a substantial city gate structure within a horizontal area of 225m<sup>2</sup>, in an area designated Operation Q. As a result of these excavations, archaeologists confidently identified and recorded the city gate's two-chamber design, as well as the gate's articulation with a wide street leading into Tušhan (Matney et al. 2009: 61). Artifact associations and abutting domestic architecture link the city gate to the Late Assyrian occupation of the tell (Matney et al. 2009: 62), while it is presumed that the latest phase of the city gate culminates with the abandonment of Tušhan around 611 BCE (Grayson 1975: 95, 33-35).

The 'Khabur Gate' served as a major corridor between the provincial center and the lands lying south of the city, which included farmsteads situated along the floodplain of the Tigris and pasturelands in the foothills beyond. These fields and pastures were the primary loci

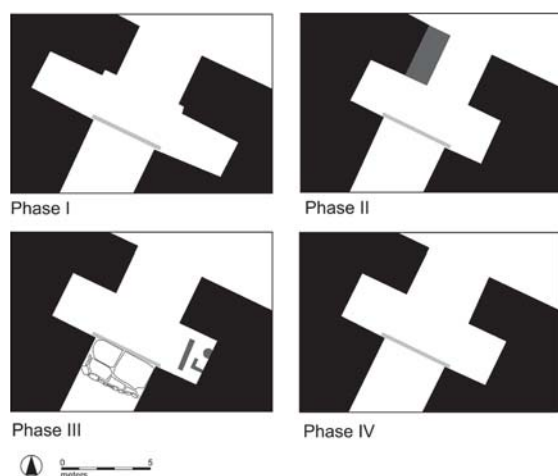


Fig. 23. Plan of Operation Q (Khabur Gate) showing the four phases of use. (from Matney et al. 2011: Fig. 14).

of agricultural production for supplies to Tušhan's temple and treasury, located just north of the gate, where administrators stored and redistributed the taxes in kind collected by Late Assyrian officials (Parpola 2008; Schachner 2003). Thus, the 'Khabur Gate' would have been a site of regular economic activity, especially the traffic of agrarian goods both in and out of the settlement, and an important hub of daily life for Tušhan's inhabitants, officials and non-officials alike. In support of this view, the stratigraphy of both the gate's buttresses and transecting street reveal four phases of construction, demonstrating consistent use and renovation of this city entrance and thoroughfare throughout its use-life (Fig. 23; Matney et al. 2009: 61).

### Methods

During excavation, archaeologists regularly sampled primary contexts of *in situ* deposits in Operation Q – floors and surfaces (including street), hearths, and well-defined pits – from all four construction phases, both in and around the gate. This analysis concentrates on 31 samples from the inner chambers of the gate itself, covering approximately 36m<sup>2</sup> that are composed of floor and hearth deposits (Fig. 24). The individual samples analyzed from the gate range in volume from 0.75 to 6.0 L, with a mode sample size of 2.0 L. Six samples come from the earliest phase of the gate and were collected from a burnt plaster floor in the eastern chamber. Three samples were taken from Phase II, a mud plaster floor in the eastern chamber. Unfortunately, these samples were practically sterile, producing only five identifiable seeds. In Phase III, four samples come from hearths situated in the eastern chamber, and the other six samples are from floor contexts in the same location. All twelve samples from Phase IV come from a clay floor in the western chamber of the gate which excavators gridded into 50 cm by 50cm squares, removing two to three liters from every other square for flotation. Paleobotanical collection protocols were discussed above.

### Results

All together, 838 identifiable plant remains were recovered from the city gate samples, representing 47 different plant taxa (Fig. 25). The pie chart breaks down the percentage of each plant group represented within this assemblage, with cereal grains making up 32% of the overall crop composition, followed by chaff (7%), pulses (1%) and fruit (< 1%). Weeds, defined here as non-cultigens, predominate the assemblage, comprising 60% of all the macrobotanical material identified. Furthermore, in all likelihood most of the 'indeterminate seeds' represent weedy species as well, meaning that the percentage of weeds in the assemblage could reach as high as 83%.

This overall plant distribution reflects both general human practices and taphonomic processes. Similar densities of wood charcoal and plant remains across floor and hearth samples (Fig. 26) suggest that the occupants of the gate chambers regularly cleaned out the fire installations. If the hearths had contained *in situ* deposits of burned material, wood charcoal and sample densities would spike in these contexts, relative to the floor samples. Instead, the low numbers of charred plant material in the hearths appear to index routine sweepings of the features' contents. Presumably, guards within the city gate would have consumed prepared plant foods, like bread and porridge, which would not have undergone burning and ended up in the archaeological record. But when faced with relatively clean hearth debris, this hypothesis is difficult to confirm. More assuredly, the enclosed gate chambers would not have been practical locations for crop processing, and low percentages of chaff and field weeds, even in the hearth samples (12.5% and 6.7% respectively), support this claim (cf. Hillman 1981). None of the city gate phases contained any storage vessels (Matney et al. 2009: 61-62), and lacking large deposits of clean grain, the city gate does not appear to be a site of cereal storage. Instead, it seems most likely that the assemblage largely comprises the debris of dung fuel burned in the chambers for heat, light and food preparation, even though archaeologists only found hearths

| ZT no(s).   | Phase | Chamber | Context   | No. of samples | Total sample volume (l) |
|-------------|-------|---------|---|----------------|-------------------------|
| 27645-27650 | I     | East    | burnt plaster floor Q-261 , randomly selected points  | 6              | 10.1                    |
| 27450-27452 | II    | East    | "bright mud plaster" floor Q-197, southwest portion   | 3              | 3                       |
| 27507       | III   | East    | hearth Q-166 atop mudbrick platform Q-164             | 1              | 2.5                     |
| 27506       | III   | East    | hearth Q-165 atop mudbrick platform Q-164             | 1              | 1.5                     |
| 27487       | III   | East    | sample from hearth Q-154, associated with floor Q-159 | 1              | 3                       |
| 27418       | III   | East    | sample from hearth Q-154, associated with floor Q-155 | 1              | 6                       |
| 27422       | III   | East    | mud floor Q-155, around pit Q-052                     | 1              | 3                       |
| 27416       | III   | East    | mud floor Q-150, northern half of chamber             | 1              | 3                       |
| 27394       | III   | East    | pebble floor Q-145, southern half of chamber          | 1              | 0.75                    |
| 27391       | III   | East    | plaster floor Q-144, northern half of chamber         | 1              | 1                       |
| 27381       | III   | East    | plaster floor Q-143, southern half of chamber         | 1              | 3                       |
| 27378       | III   | East    | plaster floor Q-142, northern half of chamber         | 1              | 3                       |
| 27068-27079 | IV    | West    | red clay floor Q-023, selections from 50x50 cm grid   | 12             | 29                      |
| TOTALS      |       |         |   | 31             | <b>68.85</b>            |

Fig. 24. Contextual information for the Operation Q archaeobotanical samples.



| Taxon                                   | Common Name                | Phase I    | Phase II  | Phase III  | Phase IV   | Total Count |
|---|----------------------------|------------|-----------|------------|------------|-------------|
| <b>CEREALS</b>                          |                            |            |           |            |            |             |
| <i>Triticum monococcum</i>              | einkorn                    |            |           |            | 1          | 1           |
| <i>Triticum</i> sp.                     | wheat                      | 2          |           |            |            | 2           |
| <i>Triticum</i> sp. spikelet fork       |                            | 1          | 1         |            |            | 2           |
| <i>Triticum</i> sp. rachis              |                            |            |           | 1          | 2          | 3           |
| <i>Triticum</i> sp. glume base          |                            | 7          |           | 1          | 7          | 15          |
| <i>Hordeum</i> sp.                      | barley                     | 26         |           | 3          | 15         | 44          |
| <i>Hordeum</i> sp. rachis               |                            | 6          |           | 10         | 8          | 24          |
| Cereal grain indet.                     |                            | 158        |           | 22         | 41         | 221         |
| Cereal glume indet.                     |                            |            | 1         | 1          |            | 2           |
| Cereal rachis indet.                    |                            |            |           | 1          |            | 1           |
| Cereal culm                             |                            |            |           | 5          | 7          | 12          |
| <b>PULSES</b>                           |                            |            |           |            |            |             |
| <i>Lens culinaris</i>                   | lentil                     | 6          |           |            | 1          | 7           |
| <i>Pisum sativum</i>                    | field pea                  |            |           |            | 1          | 1           |
| Large legume, indet.                    |                            |            |           |            | 1          | 1           |
| <b>FRUITS</b>                           |                            |            |           |            |            |             |
| <i>Ficus carica</i>                     | fig                        | 1          |           |            |            | 1           |
| <b>WEEDY TAXA</b>                       |                            |            |           |            |            |             |
| <i>Hordeum</i> sp. (wild)               | wild barley                |            |           |            | 3          | 3           |
| <i>Aegilops</i> sp.                     | goat grass                 |            |           |            | 1          | 1           |
| <i>Aegilops</i> sp. glume/spikelet fork |                            | 1          |           |            | 1          | 2           |
| <i>Eragrostis</i> sp.                   | love grass                 | 1          |           |            | 1          | 2           |
| <i>Phleum exaratum</i>                  | timothy grass              | 20         | 1         | 104        | 74         | 199         |
| <i>Stipa</i> sp.                        | needle grass               | 1          |           | 3          | 3          | 7           |
| Small grass seed indet.                 |                            | 45         | 1         | 10         | 20         | 76          |
| Grass #001                              |                            | 3          | 1         | 1          | 8          | 13          |
| Asteraceae                              | daisy family               |            |           | 1          | 2          | 3           |
| <i>Anthemis</i> sp.                     | may weed, chamomile        | 1          |           | 4          |            | 5           |
| <i>Artemisia</i> sp.                    | sagebrush, wormwood        | 1          |           |            |            | 1           |
| <i>Centaurea</i> sp.                    | knap weed, star thistle    |            |           |            | 1          | 1           |
| Apiaceae                                | carrot, parsley family     | 1          |           | 1          |            | 2           |
| <i>Buglossoides</i> sp.                 | corn gromwell              | 16         |           |            | 1          | 17          |
| Carophyllaceae                          | pink family                | 1          |           |            |            | 1           |
| <i>Heliotropium</i> sp.                 | heliotrope                 |            |           | 2          |            | 2           |
| <i>Silene</i> sp.                       | campion, catchfly          | 9          |           |            |            | 9           |
| <i>Vaccaria</i> sp.                     | cow cockle                 |            |           | 3          | 2          | 5           |
| <i>Chenopodium</i> sp.                  | goosefoot, lamb's quarters | 2          |           | 25         | 2          | 29          |
| <i>Hypericum</i> sp.                    | St. John's wort            |            |           | 1          |            | 1           |
| Cruciferae                              | mustard family             |            |           | 1          |            | 1           |
| <i>Brassica</i> sp.                     | mustard                    | 2          |           |            |            | 2           |
| <i>Descurainia</i> sp.                  | flix weed                  | 1          |           |            |            | 1           |
| <i>Cyperus</i> sp.                      | nut grass, nutsedge        | 1          |           |            | 2          | 3           |
| <i>Astragalus</i> sp.                   | milk vetch                 |            |           | 3          |            | 3           |
| <i>Coronilla</i> sp.                    | crown vetch                |            |           | 1          | 1          | 2           |
| <i>Trigonella</i> sp.                   | fenugreek                  |            |           | 1          |            | 1           |
| <i>Trigonella astroites</i>             |                            | 7          |           |            | 1          | 8           |
| Small legume indet.                     |                            | 3          |           | 4          | 12         | 19          |
| <i>Scleranthus uncinatus</i>            | knawel                     | 1          |           |            |            | 1           |
| Lamiaceae                               | mint family                |            |           |            | 1          | 1           |
| <i>Acinos</i> sp.                       | calamint                   |            |           |            | 1          | 1           |
| <i>Mentha</i> sp.                       | mint                       |            |           |            | 1          | 1           |
| <i>Teucrium</i> sp.                     | germander                  |            |           | 1          |            | 1           |
| <i>Teucrium parviflora</i>              |                            |            |           |            | 1          | 1           |
| <i>Malva parviflora</i>                 | mallow                     |            |           |            | 1          | 1           |
| <i>Fumaria</i> sp.                      | fumitory                   | 1          |           |            |            | 1           |
| <i>Papaver</i> sp.                      | poppy                      | 1          |           |            |            | 1           |
| <i>Polygonum</i> sp.                    | knotweed                   | 10         |           | 4          | 2          | 16          |
| <i>Portulaca</i> sp.                    | purslane                   | 31         |           | 1          |            | 32          |
| <i>Reseda</i> sp.                       | mignonette                 |            |           |            | 1          | 1           |
| <i>Asperula</i> sp.                     | woodruff                   |            |           |            | 1          | 1           |
| <i>Galium</i> sp.                       | bedstraw                   |            |           | 3          |            | 3           |
| <i>Asperula/Galium</i> spp.             |                            | 4          |           | 9          | 3          | 16          |
| <i>Verbascum</i> sp.                    | mullein                    |            |           | 1          | 2          | 3           |
| <i>Thymelaea</i> sp.                    | thymelaea                  | 1          |           |            |            | 1           |
| <b>IDENTIFIED REMAINS TOTALS</b>        |                            | <b>372</b> | <b>5</b>  | <b>228</b> | <b>233</b> | <b>838</b>  |
| Indeterminate seed                      |                            | 417        | 30        | 359        | 424        | 1230        |
| <b>SORTED REMAINS TOTALS</b>            |                            | <b>789</b> | <b>35</b> | <b>587</b> | <b>657</b> | <b>2068</b> |

Fig. 25. Absolute counts of archaeobotanical remains from Operation Q by phase.

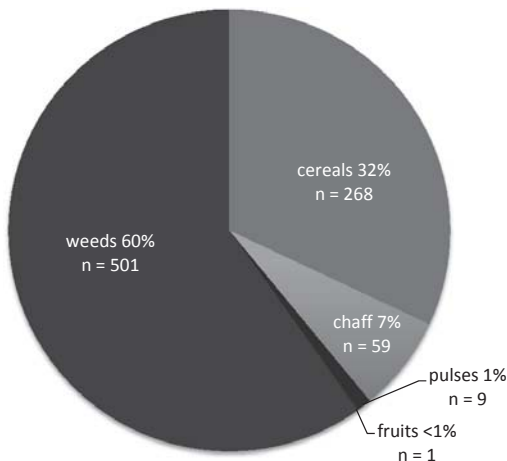


Fig. 25 (continued). Plant group representation across the total assemblage of Operation Q samples.

( $n = 3$ ) in Phase III of the city gate's history. Nonetheless, across all phases of the city gate, the samples display low charcoal densities and low cultigen to non-cultigen (i.e. weedy taxa) ratios, both indicators of dung fuel burning practices (Miller and Smart 1984). Densities of wood charcoal, which signal episodes of wood fire burning, have a low average of 0.067 g/L, with no sample exceeding 0.133 g/L, even amongst the hearth samples where wood burning would be most evident. Likewise, the ratios of cultigens to non-cultigens in the assemblage (0.161 average) compare favorably with seed recovery ratios in dung fuel cake experiments (0.014-0.031) (ibid.), and falls significantly lower than the ratio (0.5) obtained from a medieval period sample at Ziyaret Tepe where wood charcoal

appeared to be a primary fuel source (Rosenzweig in Matney et al. 2011). Finally, with the exception of primary hearth or storage deposits, most archaeobotanical remains derive from secondary or tertiary sources (Hillman 1981; G. Jones 1987; M. Jones 1985), and the spread of weedy taxa across time and space in the city gate chambers probably results from the regular sweeping of dung fuel waste from the indoor hearths onto the surrounding floor surfaces.

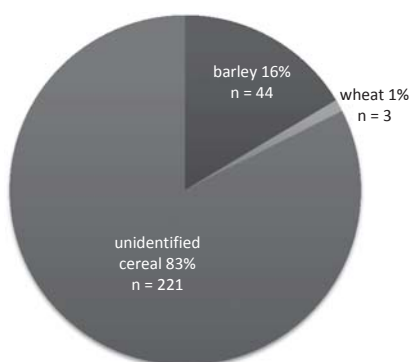
To summarize, certainly there is the likelihood that the plant remains from the gate chambers represent an amalgamation of human practices. However, lacking convincing distributional trends in expectation of indoor crop processing, plant storage, or wood fire burning, the bulk of the archaeobotanical remains can be attributed to dung fuel burning, where analytical evidence does lend support. Consequently, the plant remains from the 'Khabur Gate' should be thought of as a composite collection of forage and fodder resources for livestock. As such, this archaeobotanical assemblage presents us with information on the environmental mosaic of Ziyaret Tepe's surroundings, as well as important clues to land-use and management practices during the Late Assyrian period, especially in regards to the provisioning of animals.

From the 268 cereal grains recovered from the city gate, only 17%

|  | Floors<br>( $n = 27$ ) | Hearths<br>( $n = 4$ ) | All Samples<br>( $n = 31$ ) |
|--|------------------------|------------------------|-----------------------------|
| Crop Average Count                                 | 9.56                   | 4.75                   | 8.65                        |
| Crop Relative Abundance                            | 34.58%                 | 18.27%                 | 32%                         |
| Chaff Average Count                                | 1.01                   | 3.25                   | 1.84                        |
| Chaff Relative Abundance                           | 3.75%                  | 12.5%                  | 7%                          |
| Wood Charcoal Density<br>(g of charcoal/L of soil) | 0.069                  | 0.039                  | 0.067                       |
| Sample Density<br>(no. of items/L of soil)         | 32.53                  | 33.27                  | 29.35                       |
| Cultigen to Non-Cultigen Ratio                     | 0.130                  | 0.085                  | 0.161                       |

Fig. 26. Statistical comparisons of the floor and hearth samples from Operation Q.

## A. Grain Abundance in the Total Assemblage



## B. Grain Abundance Across Phases

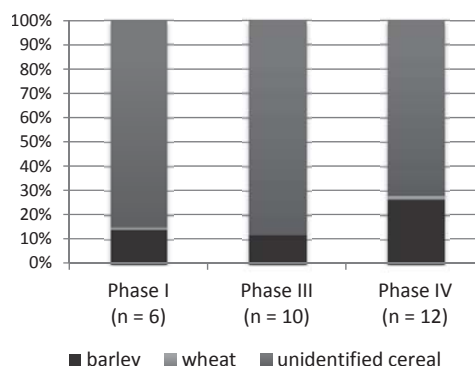


Fig. 27. a: Pie chart of cereal grain representation across the total assemblage of Operation Q samples.

b: Bar chart of cereal grain representation across the phases of use. There were no cereal grains recovered from Phase II (n = 3), which is not represented in the graph.

could be identified (Fig. 27a). Among those 47 caryopses, barley outweighs wheat 14 to 1. A salt-tolerant and drought-tolerant crop, barley (*Hordeum* sp.) would have been a reliable human staple as well as the preferred cultivated fodder for provisioning livestock in and around the semi-arid region. Meanwhile, the trace amounts of einkorn (*Triticum monococcum*) and unspecified wheat (*Triticum* sp.), which have greater water requirements and therefore most likely relied on irrigation, would have been reserved for human consumption alone. Given that these samples are understood to primarily derive from dung fuel burning, the predominance of barley over wheat is expected, as a reflection of foddering practices.

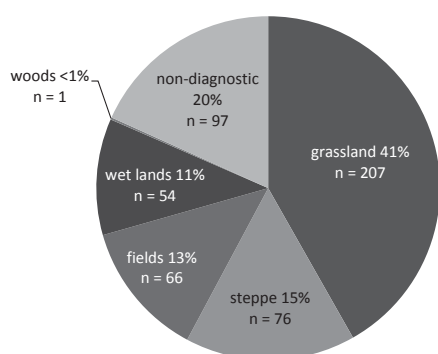
Environmental Signatures  
Represented by Weedy Taxa

Fig. 28. Pie chart of the abundance of weedy taxa, linked to the environmental conditions under which they are found and flourish, across the total assemblage of Operation Q samples.

Although there is a slight elevation in barley grains preserved in Phase IV of the 'Khabur Gate' (Fig. 27b), the trend in barley over wheat remains steadfast throughout the use life of the gate. The continuity of grain distributions across the phases may be further interpreted as evidence of the homogeneity of cultivated foddering practices across time at Tušhan. In other words, barley appears to be the main constituent of livestock cereal provisioning regardless of phase. This claim will require further investigation into the composition of dung fuel debris across the site in the Late Assyrian period in order to be confirmed.

The paucity of pulses and fruits found in the city gate resemble low percentages observed in other areas of the site where archaeobotanical analysis is ongoing. Of those pulses and fruits represented from the city gate, there are seven lentils (*Lens culinaris*), one field pea (*Pisum sativum*), and one fig (*Ficus carica*). It is worth noting that additional legume and fruit seeds have been found in other Late Assyrian contexts at the site (all in low counts), and

include chickpea (*Cicer arietinum*), grass pea (*Lathyrus sativus*), common vetch (*Vicia sativa*), and grape (*Vitis vinifera*). It may be said that these are all typical constituents of ancient agricultural packages from northern Mesopotamia. For now, however, the dataset of pulses and fruits remains too limited to extrapolate more detailed trends in production or consumption during the Late Assyrian period.

In addition to cultivars, the occupants of Tušhan also utilized and interacted with an array of non-cultivated plant taxa, particularly, as has been stressed for the 'Khabur Gate' assemblage, through the vector of livestock consumption. The weeds of animal dung fuel can be linked to the environmental conditions under which they are found and flourish, and then analyzed as proxies for pastoral, farmed and irrigated landscapes. Consequently, the weed assemblage obtained from the 'Khabur Gate' begins the process of reconstructing the environmental mosaic accessed by the people and animals of the provincial center (Fig. 28).

The predominance of grassland plants (41%) is a result of 199 seeds of timothy grass (*Phleum exaratum*), a popular forage among livestock, particularly for horses. The preponderance of this grass may be the result of its small size (< 1mm), and therefore its ability to avoid breakage and destruction. However, it is also plausible to see a connection between this abundant forage plant and the reliance upon horses (and other traction animals) in this frontier setting. Although the excavators of Ziyaret Tepe have not uncovered archaeological evidence for stabling, the historic record from Tušhan refers to horses as a critical component of the province's administration in the Upper Tigris River Valley (tablet ZTT# 22 in Parpola 2008: 86-95). Accordingly, the maintenance or expansion of endemic grasslands might have been a key element of agricultural administration among Tušhan's land managers.

Steppic taxa (15%) constitute the penultimate category of weed seeds recovered and identified from the 'Khabur Gate', and include may weed (*Anthemis* sp.), goosefoot (*Chenopodium* sp.), milk vetch (*Astragalus* sp.) and mullein (*Verbascum* sp.). These are herbs and shrubs resilient in dry and sometimes saline environments, that would have been dependable graze in the foothills for livestock in the hot, summer months. The plants of the steppe are followed by field weeds (13%) and water-loving plants indicative of wet lands (11%). Livestock consume field weeds when they graze on the stubble and fallow from harvested fields or receive grain and straw fodder (as discussed with barley, above). These weeds include plants historically associated with grain fields, such as bedstraw (*Galium* sp.), woodruff (*Asperula* sp.), goat grass (*Aegilops* sp.) and wild barley (*Hordeum* sp. [wild]), as well as plants that grow in a variety of habitats, but flourish on arable land, like corn gromwell (*Buglossoides* sp.), cow cockle (*Vaccaria* sp.) and campion (*Silene* sp.). The wet land species include purslane (*Portulaca* sp.), knotweed (*Polygonum* sp.), mint (*Mentha* sp.) and nut grass (*Cyperus* sp.). Small herds could have fed off of these plants, which would have clumped around the river's edge and in the seepage zones of irrigation canals. To date, archaeological excavation and survey have not uncovered any ancient canal systems in or around Ziyaret Tepe, but on the basis of previous research into the extensive canal-building activities of the Late Assyrians (Bagg 2000; Dalley 2002; Ur 2005; Wilkinson et al. 2005; Wilkinson and Rayne 2010), it is reasonable to suspect that irrigation was part of crop production at Tušhan. Purslane, in particular, is a plant found in irrigated fields in Near Eastern agricultural contexts (Zohary 1966: 78), and so its abundant presence (n = 32) in the city gate assemblage is quite conspicuous. The plant can still be found around Ziyaret Tepe today,

in fields that now rely upon irrigation for crop production, and locals use the leaves as a salad vegetable. Hopefully, the continued analysis of the archaeobotanical assemblage from Ziyaret Tepe will help shed more light on this issue of water management in the provinces under Late Assyrian administration. If the representation of hydrophilic plants in Late Assyrian contexts appears particularly high when compared with weed distributions from earlier periods, then irrigation was probably a component of the agricultural regime at Tušhan. Finally, only one seed associated with woodland environments, knawel (*Scleranthus uncinatus*), was recovered, making up less than 1% of the weed assemblage. The paucity of woodland weeds suggests that the forests beyond the river valley had already been sufficiently timbered by the Late Assyrian period, a presumption to be further tested through wood charcoal analysis.

*Summary: Operation Q Archaeobotany*

Preliminarily, the archaeobotanical assemblage from the 'Khabur Gate' alludes to a complex system of animal husbandry that, alongside crop husbandry, underpinned the material conditions of the Late Assyrian empire in the provincial territories. The plant remains from the city gate appear to index a range of environments utilized by animals and their human caretakers in the practice of livestock provisioning. In Late Assyrian texts, both barley and straw are taxed by the administration (Postgate 1974), and in the inscription commemorating the founding of Tušhan (882 BCE), King Ashurnasirpal II dedicates the city to the storage of barley and straw (Grayson 1991: 242-243, A.O.101.17 ii 6-28). This combined evidence suggests that foddering and foraging played an important role in the empire's agricultural programs. Therefore, although both archaeologists and Late Assyrian scribes fixate on cereal production, the first results of archaeobotanical analysis from Tušhan also recommend that we recognize the time, energy and resources that Late Assyrian land managers put into animal husbandry as well.

POSTSCRIPT

On-going scientific analysis of the very large dataset generated from the 1997-2014 campaign will continue for a number of years as the final publication volumes are being written. Many of the preliminary findings reported in our *Anatolica* series will require revision, modification, or even rejection as detailed analysis proceeds. It is clear, for example, that we initially underestimated the importance of Ziyaret Tepe in the Late Roman period based on initial surface surveys. Roman remains were documented in the late 1990s with the observation during preliminary field walking that there was an area in the western lower town with a scattering of roof tiles fragments (Matney 1998), although ceramic distribution maps showed a widespread presence of Roman ceramic types across the lower town. A concentration of Roman roof tiles, restricted in size and on the outermost lobe of the western lower town, was subsequently the object of targeted excavation in Operation J in 2002 (Matney et al. 2003: 191-194). Remains in Operation J were found to consist of walls foundations made of stone, along with roof tiles right below the surface that had been thrown up by ploughing. In Operation J there were two later phases; it remains to be established whether or not these coincide with those present in Operation T. In our earliest preliminary reports we suggested that the Roman presence on the



site consisted of isolated farmsteads, rebuilt once and then abandoned. Such a conclusion has now been superseded. With the discoveries in Operation T and Operation U, it is now clear that this occupation was much more extensive and evidently concentrated in the eastern part of the site. Furthermore we have, with the coins, the first foothold in establishing a date for this occupation at Ziyaret Tepe.

Details regarding the Late Assyrian city of Tušhan will, likewise, emerge through complete publication although some general trends are now well documented. For example, one overarching observation that can be made is that we see a highly conservative city plan at Tušhan that remains stable throughout the Late Assyrian period. In the Bronze Palace and Khabur Gate, the location of these major buildings remains stable across three centuries. Likewise, the general use of space in the Late Assyrian period in two phases of Operation K parallels this trend. Exceptions to this general rule exist, seen perhaps in the abandonment of the Operation Y building, and in the shift in architectural plans in Operation G/R. Of course, rebuilding and modification of existing structures was common, but taken as a whole it would appear that the overall urban fabric of Late Assyrian Tušhan, established by royal decree in 882 BC, showed remarkable conventionality through subsequent generations before its abandonment at the end of the Assyrian empire at the end of the seventh century BC.

After eighteen years of fieldwork, the closure of the Ziyaret Tepe expedition is bittersweet. An enormous dataset has been recovered and recorded and has produced significant scientific results; much more remains to be done in laboratories and academic offices across North America, Europe, and Turkey. Such success is entirely due to the tireless efforts of the excellent team of archaeologists and specialists who returned, summer after summer, to labor under the hot Turkish sun. I would like to extend here my unending thanks to all my team for their efforts, energy, goodwill, and cheer, without which this undertaking would hardly have been possible.

## WORKS CITED

- Algaze G., R. Breuninger, C. Lightfoot, and M. Rosenberg, 1991 — The Tigris-Euphrates Archaeological Reconnaissance Project: A preliminary report of the 1989-1990 season, *Anatolica* 17: 175-240.
- Bagg, A., 2000 — Irrigation in northern Mesopotamia: water for the Assyrian capitals (12<sup>th</sup>-7<sup>th</sup> centuries BC), *Irrigation and Drainage Systems* 14: 301-324.
- Behre, K.-E., 2007 — Collected seeds and fruits from herbs as prehistoric food, *Vegetation History and Archaeobotany* 17(1): 65-73.
- Cappers, R.T.J., R. Neef and R.M. Bekker, 2009 — Digital Atlas of Economic Plants. Eelde, The Netherlands: Barkhuis Publishing.
- Charles, M.P., 1998 — Fodder from Dung: The Recognition and Interpretation of Dung-Derived Plant Material from Archaeological Sites, *Environmental Archaeology* 1: 111-122.
- Curet, L. and W. Pestle, 2010 — Identifying High Status Foods in the Archaeological Record, *Journal of Anthropological Archaeology* (29): 413-431.
- Dalley, S., 2002 — Water management in Assyria from the ninth to the second centuries BC, *ARAM* 13/14: 443-460.
- Decker, M., 2007 — Frontier Settlement and Economy in the Byzantine East, *Dumbarton Oaks Papers* 61: 217-267.
- Decker, M., 2009 — Tilling the Hateful Earth: Agricultural Production and Trade in the Late Antique East. Oxford: Oxford University Press.
- DeFrance, S., 2009 — Zooarchaeology in Complex Societies: Political Economy, Status, and Ideology, *Journal of Archaeological Research* (17) 2: 105-168.
- Grant, A., 2002 — Food, Status and Social Hierarchy. In: P. Miracle and N. Milner, eds., *Consuming Passions and Patterns of Production*. McDonald Institute Monographs, Cambridge. Pp. 17-23.
- Grayson, A.K., 1975 — *Assyrian and Babylonian Chronicles*. Locust Valley, NY: J.J. Augustin.
- Grayson, A.K., 1991 — *Assyrian Rulers of the Early First Millennium B.C. I* (1114-859 BC). The Royal Inscriptions of Mesopotamia. Assyrian Periods Volume 2. Toronto: University of Toronto Press.
- Greenfield, T.L., 2014 — *Feeding Empires: The Political Economy of a Neo-Assyrian Provincial Capital through the Analysis of Zooarchaeological Remains*. PhD thesis. Cambridge: University of Cambridge.
- Helbaek, H., 1961 — Late Bronze age and Byzantine crops at Beycesultan in Anatolia, *Anatolian Studies* 11: 77-97.
- Hillman, G.C., 1981 — Reconstructing crop husbandry practices from charred remains of crops. In: R. Mercer, ed., *Farming Practice in British Prehistory*. Edinburgh: University Press. Pp. 123-162.
- Hubbard, R.N.L.B. and A. Clapham, 1992 — Quantifying macroscopic plant remains, *Review of Paleobotany and Palynology* 73: 117-132.
- Jones, G., 1984 — Interpretation of archaeological plant remains: Ethnographic models from Greece. In: W. van Zeist W. A. Casparie, eds., *Plants and Ancient Man: Studies in Palaeoethnobotany*. Rotterdam: Balkema. Pp. 43-61.
- Jones, G., 1987 — A statistical approach to the archaeological identification of crop processing, *Journal of Archaeological Science* 14: 311-323.
- Jones, G., 1990 — The application of present-day cereal processing studies to charred archaeobotanical remains, *Circaea* 6(2): 91-96.
- Jones, G. and P. Halstead, 1995 — Maslins, mixtures and monocrops: On the interpretation of archaeobotanical crop samples of heterogeneous composition, *Journal of Archaeological Science* 22: 103-114.
- Jones, M.K., 1985 — Archaeobotany beyond subsistence reconstruction. In: G. Barker and C. Gamble, eds., *Beyond Domestication in Prehistoric Europe*. London: Academic Press. Pp. 107-128.
- Kaptijn E., J. Poblome, H. Vanhaverbeke, J. Bakker and M. Waelkens, 2013 — Societal changes in the Hellenistic, Roman and early Byzantine periods. Results from the Sagalassos Territorial Archaeological Survey 2008, southwest Turkey), *Anatolian Studies* 63: 75-95.

- Marom, N., N. Raban-Gerstel, A. Mazar and G. Bar-Oz, 2009 — Backbone of Society: Evidence for Social and Economic Status of the Iron Age Population of Tel Rehov, Beth Shean Valley, Israel, *Bulletin of the American Schools of Oriental Research* 254: 1-22.
- Marston, J.M., 2011 — Archaeological markers of agricultural risk management, *Journal of Anthropological Archaeology* 30: 190-205.
- Marston, J.M. and N.F. Miller, 2014 — Intensive agriculture and land use at Roman Gordion, central Turkey, *Vegetation History and Archaeobotany* 23: 761-773.
- Martin, A.C. and W.D. Barkley, 1961 — Seed Identification Manual. Berkeley: University of California Press.
- Matney, T., 1998 — Preliminary Report on the First Season of Work at Ziyaret Tepe in the Diyarbakır Province, *Anatolica* 24: 7-30.
- Matney, T. and A. Bauer, 2000 — The Third Season of Archaeological Survey at Ziyaret Tepe, Diyarbakır Province, Turkey, 1999, *Anatolica* 26: 119-128.
- Matney, T., T. Greenfield, B. Hartenberger, C. Jalbrzikowski, K. Köroğlu, J. MacGinnis, A. Marsh, W. Monroe, M. Rosenzweig, K. Sauer, and D. Wicke, 2011 — Excavations at Ziyaret Tepe, Diyarbakır Province, 2009-2010 Seasons, *Anatolica* 37: 67-114.
- Matney, T., T. Greenfield, B. Hartenberger, A. Keskin, K. Köroğlu, J. MacGinnis, W. Monroe, L. Rainville, M. Shepperson, T. Vorderstrasse and D. Wicke, 2009 — Excavations at Ziyaret Tepe 2007-2008, *Anatolica* 35: 37-84.
- Matney, T., J. MacGinnis, H. McDonald, K. Nicoll, L. Rainville, M. Roaf, M.L. Smith and D. Stein (2003) Archaeological Investigations at Ziyaret Tepe, 2002, *Anatolica* 29: 175-221.
- Matney, T. and L. Rainville, editors, 2005 — Archaeological Investigations at Ziyaret Tepe, 2003-2004, *Anatolica* 31: 19-68. (with contributions by T. Demko, S. Kayser, K. Köroğlu, H. McDonald, J. MacGinnis, K. Nicoll, S. Parpola, M. Reimann, M. Roaf, P. Schmidt and J. Szuchman)
- Matney, T., L. Rainville, K. Köroğlu, A. Keskin, T. Vorderstrasse, N. Özkul Findık, and A. Donkin, 2007 — Report on Excavations at Ziyaret Tepe, 2006 Season, *Anatolica* 33: 23-73.
- Matney, T., M. Roaf, J. MacGinnis and H. McDonald, 2002 — Archaeological Excavations at Ziyaret Tepe, 2000 and 2001, *Anatolica* 28: 47-89.
- Matney, T. and L. Somers, 1999 — The Second Season of Work at Ziyaret Tepe in the Diyarbakır Province: Preliminary Report, *Anatolica* 25: 203-219.
- Miglus, P.A., 1999 — Städtische Wohnarchitektur in Babylonien und Assyrien. Berlin.
- Miksicek, C.H., 1987 — Formation Processes of the archaeobotanical record, *Advances in Archaeological Method and Theory*, Vol. 10. Pp. 211-247.
- Miller, N.F., 1988 — Ratios in Paleoethnobotanical Analysis. In: C.A. Hastorf and V. Popper, eds., Current Paleoethnobotany. Analytical Methods and Cultural Interpretations of Archaeological Plant Remains. Chicago: University of Chicago Press. Pp. 72-85.
- Miller, N.F., 1996 — Seed Eaters of the Ancient Near East: Human or Herbivore?, *Current Anthropology* 37(3): 521-528.
- Miller, N.F., 1998 — Patterns of agriculture and Land Use at medieval Gritille. In: S. Redford, ed., Archaeology of the Frontier in the Medieval Near East: Excavations at Gritille, Turkey. Archaeological Institute of America Monograph. Pp. 211-252.
- Miller, N.F. and T.L. Smart, 1984 — Intentional Burning of Dung as Fuel: A Mechanism for the Incorporation of Charred Seeds into the Archaeological Record, *Journal of Ethnobiology* 4(1): 15-28.
- Nesbitt, M., 2006 — Identification Guide for Near Eastern Seeds. London: University College London.
- Parpola, S., 2008 — "Cuneiform Texts from Ziyaret Tepe (Tuşhan), 2002-2003", *State Archives of Assyria Bulletin* 17: 1-113.
- Pearsall, D.M., 1983 — Evaluating the stability of subsistence strategies by use of paleoethnobotanical data, *Journal of Ethnobiology* 3(2): 121-137.
- Pearsall, D., 2000 — Paleoethnobotany: A Handbook of Procedures. San Diego: Academic Press.
- Pedde, F., 2001 — Development and Extension of Near Eastern Fibulae in the Iron Age. In: R.

- Eichmann and H. Parzinger, eds., *Migration und Kulturtransfer. Der Wandel vorder- und zentralasiatischer Kulturen im Umbruch vom 2. zum 1. vorchristlichen Jahrtausend*, Berlin 1999. Pp. 485-496.
- Popper, V., 1988 — Selecting Quantitative Measurements in Paleoethnobotany. In: C. A. Hastorf and V. S. Popper, eds. *Current Paleoethnobotany. Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*. Chicago. Pp. 53-71.
- Postgate, J.N., 1974 — Taxation and Conscription in the Assyrian Empire. *Studia Pohl, Series Maior* 3. Roma: Pontifical Biblical Institute.
- Ramsay, J., 2010 — Trade or Trash: an examination of the archaeobotanical remains from the Byzantine harbour at Caesarea Maritima, Israel, *International Journal of Nautical Archaeology* 39: 376-382.
- Ramsay, J. and A.M. Smith, 2013 — Desert agriculture at Bir Madhkur: The first archaeobotanical evidence to support the timing and scale of agriculture during the Late Roman/Byzantine period in the hinterland of Petra, *Journal of Arid Environments* 99: 51-63.
- Reitz, E., 1987 — Vertebrate Fauna and Socioeconomic Status. In: S. Spencer-Wood, ed., *Consumer Choice in Historical Archaeology*. Plenum Press, London. Pp. 101-120.
- Rosenzweig, M., 2014 — Imperial environments: The politics of agricultural practice at Ziyaret Tepe, Turkey in the first millennium BCE. PhD Dissertation. The University of Chicago.
- Schachner, A., 2003 — From the Bronze to the Iron Age: Identifying Changes in the Upper Tigris Region. The Case of Giricano. In: B. Fischer, H. Genz, E. Jean and K. Köroğlu, eds., *Identifying Changes: The Transition from Bronze to Iron Ages in Anatolia and its Neighbouring Regions*. Istanbul: Türk Eskiçağ Bilimleri Enstitüsü. Pp. 151-163.
- Stone, E., 1987 — *Nippur Neighborhoods*. Chicago: Oriental Institute of the University of Chicago.
- Ur, J., 2005 — Sennacherib's Northern Assyrian Canals: New Insights from Satellite Imagery and Aerial Photography, *Iraq* 67(1): 317-345.
- van der Veen, M., 1995 — The identification of maslin crops. In: H. Kroll and R. Pasternak, eds., *Res Archaeobotanicae*, International Workgroup for Palaeoethnobotany; Proceedings of the Ninth Symposium, Kiel 1992. Kiel: Oetker-Voges. Pp. 335-343.
- van der Veen, M., 2007 — Formation processes of desiccated and carbonized plant remains – the identification of routine practice, *Journal of Archaeological Science* 34(6): 968-990.
- Van Zeist, W., and J. Bakker-Heeres, 1985 — Archaeobotanical studies in the Levant. 4. Bronze Age sites on the north Syrian Euphrates, *Palaeohistoria* 27: 247-316.
- Wilkinson, T.J., and L. Rayne, 2010 — Hydraulic landscapes and imperial power in the Near East, *Water History* 2: 115-144.
- Wilkinson, T.J., E. Barbanes Wilkinson, J. Ur and M. Altaweel, 2005 — Landscape and Settlement in the Neo-Assyrian Empire, *Bulletin of the American Schools of Oriental Research* 340: 23-56.
- Zohary, M., 1966 — *Flora Palaestina*. Part One, Text. Jerusalem: Israel Academy of Sciences and Humanities.
- Zohary, D., M. Hopf and E. Weiss, 2012 — *Domestication of Plants in the Old World: The Origin and Spread of Domesticated Plants in Southwest Asia, Europe, and the Mediterranean Basin*. 4<sup>th</sup> ed. New York: Oxford University Press.

## LOWER GÖKSU ARCHAEOLOGICAL SALVAGE SURVEY PROJECT, THE SECOND SEASON

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### **Abstract**

*This article presents the results of the 2014 season of the Lower Göksu Archaeological Salvage Survey Project, in the Mersin Province of Southern Turkey. In 2014, the team continued the work begun in 2013, documenting as many archaeological sites and monuments in the Lower Göksu valley as possible before the scheduled construction of the Kayraktepe Dam. During the course of the two-week season, we were able to discover several new sites in the flood zone, as well as returning to several known sites to undertake more detailed work. This more detailed work included initial resistivity surveying and the documenting of illegal excavations. A short summary of the field season and a discussion about our methodology and the local settlement patterns are provided here. The 2014 season of this Bitlis Eren University project, which is conducted in collaboration with the University of Leicester, was funded by the Bitlis Eren University Scientific Research Projects Commission and the British Institute of Archaeology at Ankara. The survey project will continue for another season in 2015 and we will most probably start excavating one of the major sites in 2016 in collaboration with the Silifke Museum.*

### INTRODUCTION

The Lower Göksu Archaeological Salvage Survey Project (LGASSP) aims to document, as far as possible, the archaeological heritage of the Lower Göksu valley, which lies in the Mersin Province of Turkey (Şerifoğlu et al 2014). This section of the river valley is scheduled to be flooded with the construction of a hydroelectric dam at Kayraktepe in 2018, approximately 10km northwest of the town of Silifke (ancient Seleucia ad Calycadnum). As a result, the rich archaeological record of this area will be lost, submerged beneath the waters of a new lake. During the first LGASSP season in summer 2013, the team both identified several new sites from extensive survey, and collected more data from previously known sites in intensive survey. The team was able to push back the date of earliest known occupation to the Chalcolithic period; uncover more about settlement patterns in the prehistoric period; and illuminate the relationship between military and domestic sites in the Roman to Byzantine periods (Şerifoğlu et al 2014).

In autumn 2014, the LGASSP team returned to the Lower Göksu valley for a second survey season. The focus of the two-week season was, once again, twofold. Firstly, we attempted to discover new and previously undocumented sites through a combination of examining satellite images; seeking information from local inhabitants; and traditional extensive field

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walking. Secondly, we undertook more detailed work at several known sites, in order to better establish the nature of these sites; clarify their chronology; identify potential patterns of trade and exchange; and document the remains of illegal excavations and looting activity.

### THE EXTENSIVE SURVEY AND THE NEW DISCOVERIES

The second season of our project was conducted in between 28<sup>th</sup> October and 10<sup>th</sup> November 2014. The active participants were Tevfik Emre Şerifoğlu (field director), Nazlı Evrim Şerifoğlu (fieldwork assistant, illustrator and photographer) and Doğukan Bekir Alper (the government representative). Naoíse MacSweeney joined the team for almost a week to help with the resistivity survey. Carlo Colantoni and Bengi Başak Selvi, who could not join the actual fieldwork, formed the remote sensing team, providing the list of site candidates to visit and mapping the recorded sites.

Of numerous site candidates that were visited during the season, only a few could be identified as archaeological sites. As discussed earlier, the main reason for this is the rough topography, which makes it very hard to differentiate an archaeological site from a natural geological formation (Şerifoğlu et al 2014: 74). Seven new sites were discovered during the season, of which one was shown to us by the local villagers, and three sites, which were recorded earlier, were visited for more detailed observations (Fig. 1).

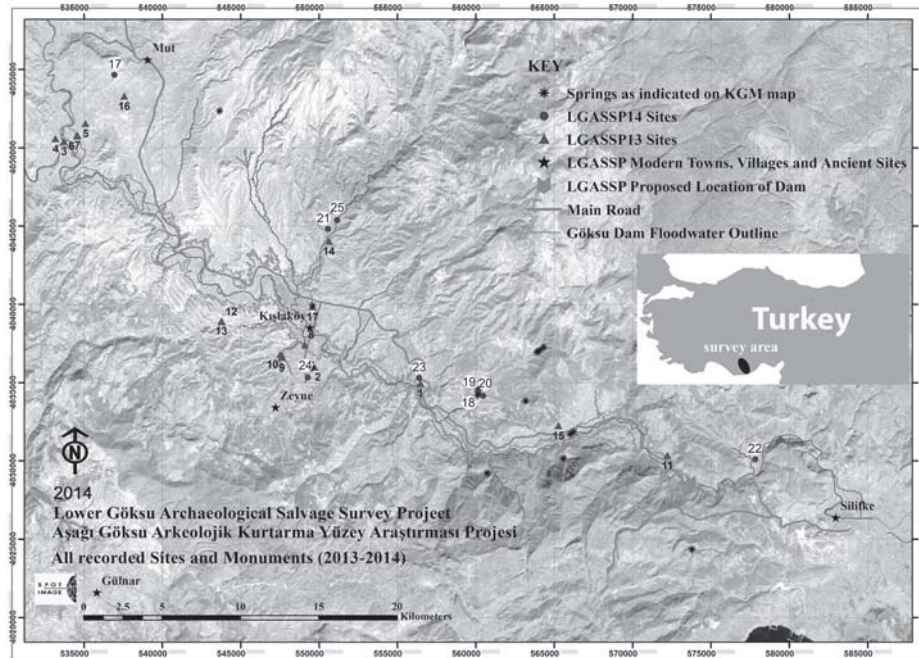


Fig. 1. A map of the Lower Göksu Valley showing the sites recorded in 2013 and 2014. Sites according to LGASSP record number: 16 Örentepe, 18 Dağ Camii, 19 Pamuklu Cave, 20 Pamuklu 1, 21 Pamuklu 2, 22 Ardıçlıtepe, 23 Ekşilekalesi, 24 Evkafçiftliği, 25 Şarlakepe and 26 Göceklertepe.

All the archaeological sites that were visited and documented during the 2014 season were post-Classical settlements, except the mound of Örentepe, which was occupied with interruptions from the Early Bronze Age until the Medieval period, and possibly Ardiçlıtepe, which may have been occupied during the 3<sup>rd</sup> millennium BC based on a small number of red lustre burnished sherds, and also occupied during the Hellenistic and Roman periods.

Örentepe, which was visited and documented by David French in 1963, was revisited by our team this season (Fig. 2; French 1965: 180). Örentepe is located on the village road, that links the town of Mut to the mound of Görmüttepe, which is located where the Ermenek River meets the Göksu River and which was visited in 2013 (Şerifoğlu et al 2014: 77). The slopes and the summit of the mound, which were badly damaged by the local villagers while they were planting olive and fruit trees, were walked systematically, and diagnostic sherds were recorded by drawing and photographing for future analyses. As also indicated by French, the mound was first settled during the Early Bronze Age and our investigations have shown that it was occupied with interruptions until the Medieval period.



Fig. 2. Örentepe.

The owner of a two-storey house, which was built in the early 20<sup>th</sup> century near the mound, has informed us that the house was constructed using the stones of the fortification walls that were present on top of the mound, which must have belonged to the Byzantine or to the Medieval period.

After we concluded our observations at Örentepe, our team decided to pay a short visit to the small mosque that was built on top of a hill called Kilise Tepesi (the Church Hill), which is visible from Örentepe and is located to the southwest of Mut town centre.



Fig. 3. Dağ Camii.

The square planned mosque, which the locals refer to as Dağ Camii (the mountain mosque), had a dome in the past, and was constructed using the remnants of an old church that was present here, as both indicated by the stones carved with Byzantine ar-

tistic elements, and by the name of the hill (Fig. 3). The mosque is believed to be built either during the late Seljuk or the Karamanid period (Arel 1962: 246-247; Köse and Atlay 2005: 576-577, Fig. 19). A small number of glazed pottery sherds found in the vicinity of the mosque and recorded by our team support this dating.

One of the main aims of this season was to investigate areas around water sources to see if these were preferred zones of habitation in the past. To achieve this goal, many water sources marked on maps and at relatively accessible locations were visited during the field season, around which our team conducted systematic walks. Strangely enough, almost none of these areas had any archaeological material, except the area around Pamuklu Village, which is located on top of the plateau, to the northeast of Kargıcak Village. An agricultural field near this village had pottery



Fig. 4. A high column base with carved motifs found close to the village of Pamuklu.

scatters and there was a small cave just near it, with niches carved into its walls. Another field to the southeast of the village had pottery scatters and the remains of an old church, which included numerous roof tiles, roughly dressed stones, and one high column base with carved floral and anthropomorphic motifs (Fig. 4). The sherds that were studied imply that these sites were occupied from the Late Roman until the Medieval period.

The fields around Damtepe, which is a multiperiod mound that was discovered by our team in 2013 (Şerifoğlu et al 2014: 75), were also investigated with the same aim as topographical maps indicated that there were springs in this area. Although we could not find the springs marked on the old maps, probably because they were dried out as a result of excessive water usage for agriculture, we still conducted systematic walks at the fields to the west and northwest of Damtepe. These fields had pottery scatters all across them that could be dated to the Hellenistic, Roman and Byzantine periods, which show that the settlement on top



Fig. 5. A large rock with a rectangular cavity at Ekşilerkalesi.



of the mound grew in size with the Hellenistic period and the land surrounding the settlement, was used more intensively after this period.

Another site candidate along the river valley that was visited in 2014 was a high rock outcrop located to the northwest of Silifke town centre and near the village of Ekşiler. We detected a small number of sherds on top of the rock outcrop and at its less steep southern and western slopes that could be dated to the Hellenistic, Roman and Medieval periods in terms of general characteristics. Several round holes with diameters ranging from 20cm to 30cm, which were carved into the rock, were found at different parts of the rock outcrop, and a large rock into which a rectangular cavity was carved, and which may have had a small room built into it or which might have been a large basin, was recorded at the northeastern corner of the rock outcrop (Fig. 5). This site was recorded as Ekşilerkalesi.

The rest of the extensive survey work focused on the alluvial plains in the area where the Kurtuyu River joins the Göksu River. One site we visited was near the village of Şarлак, which is located to the south of Çingentepe. This site was first discovered during the survey conducted by Şerifoğlu in 2006 as a part of his doctoral research (Şerifoğlu 2007). The mound of Şarlaktepe



Fig. 6. Şarlaktepe.

is located on top of a natural hill and is badly damaged because of trees that were planted on top of it (Fig. 6). The small number of sherds found on this mound were badly eroded and although it is hard to date them, most of them seem to belong to the Byzantine period based on general characteristics, but some might well be earlier.



Fig. 7. Göceklertepe.

The other two sites visited and documented in this area were at the northern edge of the Kurtuyu River valley. Göceklertepe, which is a small hill top settlement on top of a ridge at the eastern bank of the river, possess a small number of Byzantine and Medieval sherds, which imply that there was perhaps a small farmstead at this location during these periods (Fig. 7). At the other side of the

river, a rock with several holes carved on its flat top surface was observed, which may have been used for ritual purposes.

Ardıçlıtepe is located to the southwest of Göceklertepe, on the western side of the Kurtuyu River (Fig. 8). The settlement consists of a steep hill and a lower terrace with sherds



Fig. 8. Ardıçlıtepe.

that range in date from the Hellenistic to the Medieval period. A large rock on top of the steep hill has a round depression, which is approximately 50cm in diameter and which was carved on top of it (Fig. 9). A small number of sherds, which were found at the eastern slope of the steep hill and which have a red shiny burnish, may belong to the Early Bronze Age as

these look similar to the red burnished ware examples found elsewhere in the Göksu Valley. However, as no diagnostic sherds could be found, it is hard to make more precise correlations, and therefore this dating cannot go beyond a general assumption.



Fig. 9. A large rock with a round depression at Ardıçlıtepe.

#### METHODOLOGICAL CONCERNS

The research strategy for the 2014 survey season was, through the use of remote sensing (primarily open-access online Microsoft Bing satellite imagery in combination with a detailed DGM topographic map of the valley<sup>2</sup>), to investigate locations deemed to potentially be sites, locations thought to possess perennial water sources or places of geological interest (such as caves). To this end, systematic walks were conducted around areas marked as springs or fountains on the topographic map and follow up leads garnered from the knowledge of local inhabitants. However, the success rate of

<sup>2</sup> A.T.C. Ulaştırma, Denizcilik ve Haberleşme Bakanlığı, Karayolları Genel Müdürlüğü – DGM – (T. C. Ministry of Transport, Maritime & Communications. General Directorate of Highways), Silifke-Mut State Road map 1:25000 (2012). Microsoft Bing Maps utilising DigitalGlobe high-resolution colour imagery is available for this area of Turkey. However, SPOT and CORONA imagery available for the Göksu region lack the resolution necessary to identify sites in the valley.

identifying unknown sites through remote sensing alone proved to be low<sup>3</sup>. The locations of the larger multi-period mounded sites are already known, whilst the smaller ephemeral sites are by their nature elusive and hard to identify using satellite imagery. Compounding difficulties were weather conditions and local circumstances that hindered a number of visits to site candidates.

So far, over 63 locations have been visited. The survey has identified 26 sites or points of archaeological interest. A small number were visited between 2006-2007 as part of Şerifoğlu's doctoral dissertation and the site of Kilise Tepe is known from the excavations carried out under the direction of Nicholas Postgate (Postgate and Thomas 2007; Bouthillier et al 2014). The LGASSP, considering the nature of the terrain and the limited time available for each survey season, has managed to investigate a large number of locations of interest, with 29 locations visited in 2013 and 30 in 2014. Of these, 37 are known to have been 'false positives' derived from remote sensing (although a number were investigations of non-archaeological landscape features). These locations proved to possess no archaeological remains visible on the surface and a number were found to be natural topographic features on the valley floor or flanks. Of the sites identified, the majority were not identified through remote sensing methods, but rather were accounted for by being either common knowledge to local inhabitants or known from previous archaeological researches.

A number of locations deemed to have been of potential interest through remote sensing proved to be inaccessible in the 2014 season due to reasons outside of the survey team's control: road construction, agricultural activities or weather conditions (there were a number of days of heavy rainfall making certain locations deemed to be of interest impossible to reach due to steep, muddy slopes or tracks made impassable to the project's vehicle).

As discussed above, a number of types of places of interest were added to the 2014 survey roster. In particular, an aim of the season was to investigate locations with access to perennial water sources, i.e. the 'preferred zones of habitation' mentioned earlier, that were neither the Göksu river nor its larger tributaries. A selection of place names or locations marked as springs or fountains, labelled as *pınar* or *çeşme*, on the DGM map were noted. All except one of those visited proved to have no visible associated water sources. The one positive identification (a spring) does, however, lie in a zone towards the eastern end of our sector of the Lower Göksu that has a particular abundance of water sources marked on the DGM map (see Fig. 1). Found in close proximity to this spring were three sites: Pamuklu cave, Pamuklu 1 and Pamuklu 2. Paradoxically, few potential site candidates have so far been identified by remote sensing in the rest of the zone. Nevertheless, this zone will form part of the 2015 survey season's research strategy.

Although the identification of sites through the use of remote sensing methods has not proved to have been as fruitful as hoped, the LGASSP intends to continue to test new strategies and build up a 'profile' of the typical signature visible in satellite imagery of small, ephemeral sites that are often indistinguishable from natural landscape features.

<sup>3</sup> It should be noted that further locations already identified by satellite imagery analysis as places of interest have yet to be visited due to the time constraints of the 2014 season. Thus, there is still potential for an increase in the numbers of small sites identified by remote sensing methods in the upcoming 2015 season.



The landscape of the valley remains dynamic with modern practices rapidly modifying it, and so limiting or obscuring the identification of potential archaeological sites. The clear identification of ancient settlement by remote sensing remains problematic and the survey team continues to rely on the most part on local knowledge and field walking to identify the more elusive sites. This is due to a range of reasons: the natural topography (see Şerifoğlu et al. 2014: 77-78); abundant vegetation and agricultural practices (especially orchards and groves); heavy erosion of the valley flanks; dense modern occupation (with large numbers of residual or abandoned structures visible in the satellite imagery); the destruction and re-use of older structures; and the small size of the less prominent archaeological sites. Many of the issues related to site identification were briefly discussed in a previous publication by the project (Şerifoğlu et al. 2014: 78-79).

#### RESISTIVITY SURVEY ON ATTEPE AND ÇİNGENTEPE

The mounds of Attepe and Çingentepe, on which our team conducted intensive investigations in 2013, are the two largest multi-period mounds in the Göksu Valley after Kilise Tepe. The work conducted at these sites in 2013 have shown that Attepe, which is located where the Ermenek River meets the Göksu River, was first settled during the Chalcolithic period and occupied until the Byzantine period, and Çingentepe, which is located to the south of Kilise Tepe, at the southern side of the river, and close to where the Kurtsuyu River joins the Göksu River, was occupied from the Early Bronze Age until the Medieval period (Şerifoğlu et al. 2014: 75-76).



Fig. 10. Resistivity work at Çingentepe.

Our team decided to further enhance our knowledge about these ancient settlements by conducting geophysical investigations on and around the respective mounds. For this purpose, we conducted resistivity surveys on the western slopes of both mounds using a Geoscan RM-15 Resistance Meter, which was provided by the University of Leicester (Fig. 10). Our work at both mounds were conducted along long strips, which

were 10m wide and 60m long, and at Çingentepe, a very narrow area along the upper part of the damaged eastern slope was also investigated using the resistance meter.

The data that was collected during this work is still being evaluated but the preliminary results provided some general information about the architectural remains just below the surface and how the settlements spread over the natural hills they were built on. The resistivity data clearly indicate the existence of several multi-room buildings with rectangular plans, usually with a northwest-southeast alignment, at both sites although the data from Attepe is less clear. The settlement at Çingentepe seems to cover the whole hill it was built on. However, the settlement at Attepe seems to be restricted to the slopes of the rocky hill and even if the summit was occupied at one point in history, the thin archaeological layer that was left behind must have been eroded by natural causes.

The resistivity surveys will be continued in 2015 at Attepe and Çingentepe, investigating the less steep southern slopes and the summits. The resistivity surveys will be accompanied by magnetometric surveys, as we believe that the combined results will be easier to interpret and will provide more detail. We also plan to conduct similar investigations at the vicinity of Kilise Tepe, especially across the flat fields at the eastern side of the mound.

#### SALVAGE WORK ON ÇINGENTEPE

Visits to Çingentepe in both 2013 and 2014 revealed considerable amounts of illegal excavation and looting activity, both on the summit of the mound and around its base. One of our priorities this year, therefore, was to document the extent of the looters' activities, and to record any archaeologically significant information which remains on the site.

The largest and most noticeable area of illegal excavation was a long section dug from the southeast base of the mound (Fig. 11). The excavated area stretches almost along the entire length of the mound, uncovering a section of 75m length and approximately 3m deep, which reveals something of the stratigraphy of the mound. Given the scale of the section, it seems most likely that the area was excavated using a mechanical digger. The section was examined and drawn, and sherds were collected both from the scatter underneath the section and from identifiable levels within the section itself. Several different levels were clearly identifiable in the section, including at least one heavily burnt level, as well as several walls. Initial analysis suggests that the remains uncovered date from the Early Bronze



Fig. 11. The illegally excavated eastern slope of Çingentepe.

Age to the Roman period. Work on the collected pottery, including both traditional visual analysis and sampling for ceramic petrography, continues.

In addition to this long section, a second area of recent illegal excavations was identified on the top of the mound. A pit of almost 3m depth had been dug here, and judging from the straightness of the sides, the digging was once more likely done by a mechanical digger. More stratigraphic information could be gained from examining the sides of the pit, as there were signs of two distinct levels. Unfortunately, very little pottery was found in the pit, and so the dating of these levels remains uncertain, but based on the elevation, we expect them not to be earlier than the 2<sup>nd</sup> millennium BC.

#### A VIEW OF THE ARCHAEOLOGICAL LANDSCAPE AFTER THE SECOND SEASON

As mentioned above, the 2014 survey season resulted in the identification of 7 new sites and the revisiting and detailed recording of 3 additional sites. This brings the total of archaeological sites recorded by the survey to 26. This additional new data has brought added clarification to the distribution of sites and the settlement patterns of the pre-Classical and Classical to post-Classical periods in the Lower Göksu valley (Fig. 12). For a preliminary allocation of settlement numbers according to period, see Table 1. Unfortunately, the space available here only allows for a number of brief and general observations regarding these settlement patterns.

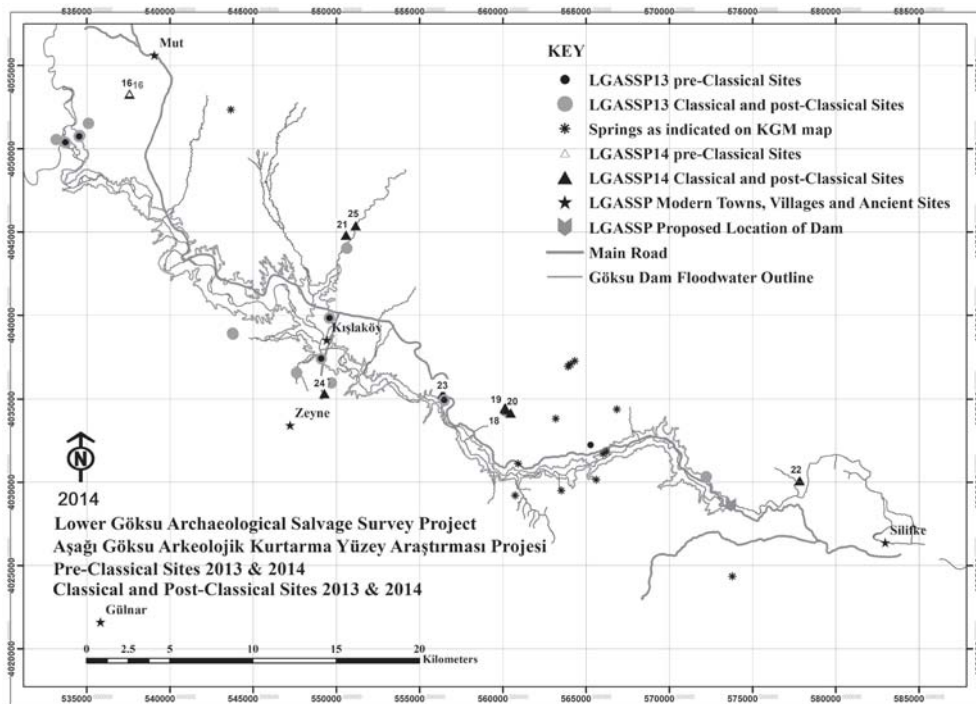


Fig. 12. A settlement distribution map of the Lower Göksu Valley showing all pre-Classical and Classical/post-Classical sites recorded in 2013 and 2014.

For the prehistoric period—a period of low site numbers-, a valuable additional insight into settlement patterns along the valley was gained with the collection and registration of Örentep, which possesses evidence of occupation in the Early to Middle Bronze Age. Sites with these periods of occupation are typically larger, multi-period and mounded.

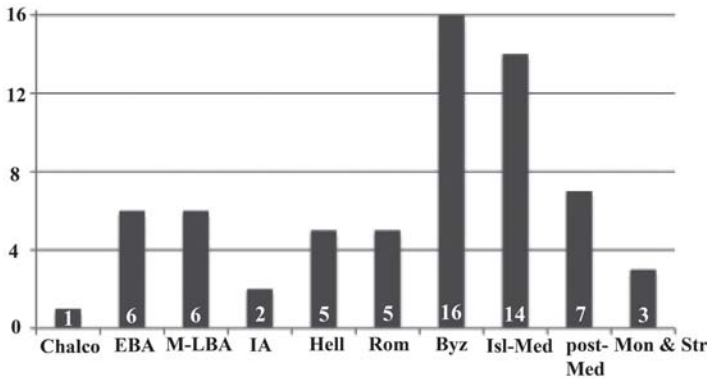


Table 1. LGASSP 2014 Survey season: preliminary settlement numbers according to period.

*Periods: Chalcolithic, Early Bronze Age, Middle-Late Bronze Age, Iron Age, Hellenistic, Roman, Islamic-Medieval, post-Medieval, Monuments and Structures.*

The number of identified sites through the Hellenistic and Roman periods remains relatively low, although there is a rapid increase in settlement along the Lower Göksu valley in subsequent periods (c.f. Şerifoğlu et al. 2014: 79-80). The sites identified, reassessed or collected in 2014 include: 4 with Hellenistic/Roman occupation (including Ardiçlitepe, Evkafçıtlığı and Örentep), 5 with Byzantine, 8 with Islamic/Medieval and 4 with evidence of post-Medieval settlement.

The previously recognised trend of occupation at sites dated to the Hellenistic and Roman periods continuing to be occupied into the Byzantine period is supported by data from these new sites.

In a similar pattern to the results of the 2013 season, we see the majority of newly recorded sites possessing Byzantine or Islamic/Medieval occupation; sometimes in combination. This reaffirms our previous recognition of a potential peak in the settlement numbers in the valley once the Roman period transited into the Byzantine (see Şerifoğlu et al. 2014: 80). The even distribution of Byzantine settlement along the river Göksu and its tributaries is now becoming increasingly apparent.

The relationship between military outposts and domestic settlements in the Roman through Byzantine periods still needs to be further explored. What is emerging is a network of military or religious ‘nodes’ in the settlement landscape, supported by or protecting small settlements; apparently, predominantly hamlets and farmsteads. The role of these physical and spiritual points of control and pilgrimage along the Göksu valley – presumably a significant transit route from the coast to the interior in this period – remains open to discussion. Dated to the Byzantine/early Islamic periods, the new fortified (*kale*) site of Ekşilekalesi supplements the two so far recorded by the survey (Maltepe and Akkale). Taken in conjunction with the two new hilltop sites (Ardiçlitepe and Göceklertepe) recorded near the river Kurtsuyu – a tributary of the Göksu – evidence points to a settlement system practicing not only defense, but also topographic prominence in these periods. The number of locations with religious significance



continues to expand, emphasizing the unique nature of settlement during the Christian period in the valley. Adding to the survey's roster of Christian religious sites are the remains, or evidence of the reuse, of the two churches (Pamuklu 2 and Dağ Camii) discussed above.

## CONCLUSION

The first two seasons of LGASSP have offered many new insights into the history and archaeology of the Lower Göksu valley. However, significant questions still remain. The first concerns the nature of the settlement pattern and landscape use in the valley over the centuries. It seems likely that we have already identified many of the large settlement sites in the flood zone, through our combination of extensive survey; analysis of satellite images; targeted investigations around natural features; and making use of local knowledge. However, it is also likely that we remain unaware of many smaller settlements (house steads, hamlets, sites which were only seasonally occupied, etc.) and other types of site (cult, craft working, military, etc.). We therefore still need to discover more about these smaller and other sites in the valley: or, failing this, to carry out detailed enough investigation to be confident that we have discovered an absence of such sites. Building up a fuller picture of the overall settlement pattern and landscape use will therefore be one major focus of the project's future work.

The second significant question concerns specific periods of the past for which we have very little evidence: the Chalcolithic, the Middle Bronze Age, the Iron Age, and the Hellenistic period. For each of these eras, both the work of LGASSP and previous research projects have uncovered only an extremely limited amount of material. It has been suggested, therefore, that there was either very little or no permanent occupation in the valley during these times, and that the small number of finds can be explained as chance losses by travellers passing along the river route. However, part of the problem is that the local Göksu valley ceramics at these times are poorly understood. It is therefore possible that ceramics from these periods have not always been recognised. As we study the ceramic material from the 2014 and later seasons, we will need to keep these periods in mind. Investigating the possible gaps in occupation in the lower Göksu valley, then, will be another main focus of our work in the coming years.

The final significant question for the project this year concerns the nature of the valley's major settlement sites. These large, multiperiod mounds were located in prominent places on the river plain, often near the juncture between tributaries and the main Göksu stream. While Kilise Tepe has been excavated (Postgate and Thomas 2007; Jackson et al 2012), relatively little is known about Çingentepe, Attepe, and Görmüttepe, for example. These were all significant settlements in several different periods of history, although little is understood about their nature. A third main focus for our work in LGASSP will therefore be to shed greater light on these major sites. As mentioned above, further geophysical survey is planned for next season and much can also be gained from studying the remains left from illegal excavations. However, we are hopeful that in future years we may be able to conduct targeted excavations at these sites in collaboration with the Silifke Museum.



## ACKNOWLEDGEMENTS

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## BIBLIOGRAPHY

- Arel, M., 1962 — Mut'taki Karamanoğulları Devri Eserleri. *Vakıflar Dergisi* 5: 241-250.
- Bouthillier, C., C. Colantoni, S. Debruyne, C. Glatz, MM. Hald, D. Heslop, E. Kozal, B. Miller, P. Popkin, N. Postgate, C. S. Steel and A. Stone, 2014 — Further work at Kilise Tepe, 2007-11: exploring the Bronze to Iron Age transition. *Anatolian Studies* 64: 95-161.
- French, D., 1965 — Prehistoric Sites in the Göksu Valley. *Anatolian Studies* 15: 177-201.
- Jackson, M.P.C., J.N. Postgate, and T.E. Şerifoğlu, 2012 — Excavations at Kilise Tepe 2011. *Kazı Sonuçları Toplantısı* 32.3: 424-439.
- Köse, H. and D. Atlay, 2005 — Mut Claudio-polis. Istanbul: Mut Belediyesi.
- Postgate, J.N. and D.C. Thomas, 2007 — Excavations at Kilise Tepe, 1994-1998: From Bronze Age to Byzantine in Western Cilicia. Cambridge, London: McDonald Institute for Archaeological Research, British Institute at Ankara.
- Şerifoğlu, T.E., 2007 — An Archaeological Survey Performed along the Göksu River Valley in Turkey as a Part of a Doctoral Research. WAC Inter-Congress in Jamaica, May 20-27, 2007. [http://www.worldarchaeologicalcongress.org/students/jamaica/e\\_session/Serifoglu.htm](http://www.worldarchaeologicalcongress.org/students/jamaica/e_session/Serifoglu.htm)
- Şerifoğlu, T.E., N. MacSweeney, and C. Colantoni, 2014 — The Lower Göksu Archaeological Salvage Survey Project: Preliminary Results of the First Season. *Anatolica* 40: 71-92.

## WAS ANCIENT EGYPT THE ONLY SUPPLIER OF NATRON? New Research Reveals Major Anatolian Deposits

Gonca Dardeniz<sup>1</sup>

### *Abstract*

*The use of natron as a source of soda in vitrified material industries, especially glassmaking, is known since the first millennium BC in the Near East. The source of natron has usually been associated with the well-known reserves of Wadi Natrun in Egypt, whereas ancient Anatolian sources have been less discussed as potential supplies. This paper reviews the sources of natron available in Anatolia and discusses their importance for the ancient vitrified material industries.*

### INTRODUCTION

Natron, with its chemical composition of sodium carbonate 10-hydrate, had various applications in ancient technologies, ranging from the mummification of bodies to soap production and glassmaking (Lucas 1962; Nicholson and Shaw 2000). This white powdery material is an evaporate deposit of alkaline lakes and is found in nature as fragile, whitish stone chunks and it remains a crucial industrial component of soap/detergent and glass industries today. It is a form of soda (alkali) that was also much used as a component in vitrified material (e.g., frit, faience, glazed pottery) and glass production together with other major components such as silica and lime. Natron helps reduce the melting temperature of silica and in glassmaking is referred to as 'flux'. Preliminary studies suggest that natron has been used for manufacturing glass and other vitrified materials since the Iron Age (1200-500 BC) (Brill 1999; Bimson and Freestone in Barag 1985; Reade *et al.* 2005), earlier methods having made use of plant ash as the flux. This paper discusses current research on natron sources in the ancient Near East and suggests how these resources were critical to vitrified object production from the Iron Age until the 7<sup>th</sup> to 9<sup>th</sup> centuries AD. Traditional wisdom from scholars studying vitrified material technologies and the emergence of ancient glass have usually associated natron sources with the well-documented region of Wadi Natrun, located 100 km northwest of Cairo (Egypt). However, the notable natron sources of central Anatolia, especially Lake Van, and its peripheral lakes in the east (Fig. 1), have been less studied for their role as a possible source of natron in antiquity. This paper presents a brief discussion of their potential and emphasizes their role in vitrified material production practices, particularly the glass industry of the ancient Near East.

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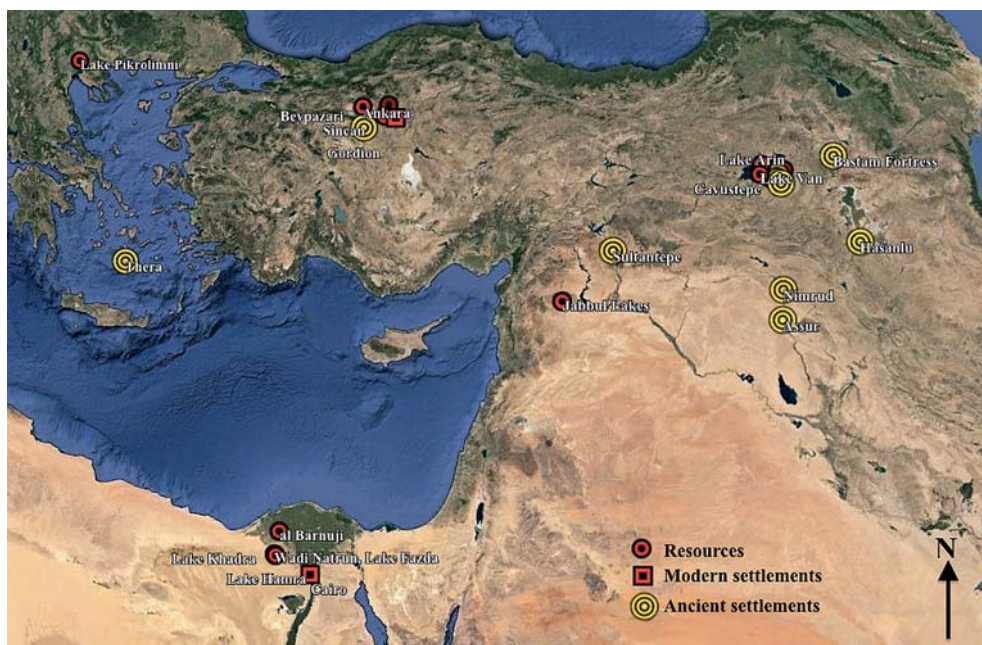


Fig. 1. Resources and settlements mentioned in the text, excluding Badakshan, a province of Afghanistan. This and the following maps, which are not to scale, illustrate the locations and relationships among ancient and modern settlements as well as the locales of resources. The legend also applies to Figures 2 and 3.

#### FROM PLANT ASH TO NATRON

During the 2<sup>nd</sup> millennium BC, plant ash was used as the source of soda for vitrified industries and glassmaking in Mesopotamia and Egypt (Turner 1956a, b; Brill 1999; Henderson 2000, 2013). Chemically analyzed vitrified materials have confirmed the use of plant ash-based soda content of the vitrified assemblages at sites such as Tell Brak, Tell al-Rimah, and Nuzi in northern Mesopotamia (Vandiver 1982; Moorey 1985: 154; Shortland and Eremin 2006; Shortland *et al.* 2007; Henderson 2013), Alalakh in southern Anatolia (northern Levant) (Barag 1985; Brill and Stapleton 2012; Dardeniz 2014, forthcoming), and Amarna, Qantir, and Malkata in Egypt (Rehren 2000; Mass *et al.* 2002; Rehren and Pusch 2005; Jackson and Nicholson 2007). The plant family *Salsola kali*, including *Arthrocnemum strobilaceum*, *S. vermiculata*, *Haloepelis* sp., *S. kali*, *S. jordanicola*, and *Anabasis syriaca*, which grows abundantly in southern Anatolia, Syria, and the Levant, has been documented as the source of soda in glass from the 2<sup>nd</sup> millennium BC (Barkoudah and Henderson 2006; Henderson 2013). The distinction between plant ash and natron flux in vitrified materials is made by comparing the percentages of magnesia (magnesium oxide, MgO) and potash (potassium oxide, K<sub>2</sub>O) in the chemical composition of the materials. Vitrified materials containing plant ash-based alkali show higher than 1.5% potash and magnesia levels compared to natron-based materials, which generally include less than 1.0% potash and magnesia (Henderson 1985).

The use of natron in the vitrified material industry was scarce before the Iron Age, although some examples were noted in Egypt (Moorey 1985). The glaze of two Badarian period (early 4<sup>th</sup> millennium BC) steatite beads was found to contain less than 0.5% potash, indicating natron as the soda source (Tite and Bimson 1989). It was during the Iron Age, however, that the use of natron only as the flux became dominant. A number of factors may have triggered this change. At the end of the Late Bronze Age (1600-1200 BC), with the collapse of palace economies and centralized control over production, raw materials for crucial industries were replaced with other materials (Liverani 1987). For example, as the knowledge related to iron technology spread, the use of tin bronzes and ternary alloys decreased (Yener 2000, 2010). It is proposed here that with the dawn of this new era, a change took place in both metallurgy and the technology of vitrified materials. This transition is especially visible in the glass industry, with natron replacing plant ash as the soda source. A sample from Nimrud (Iraq) of 13 cobalt blue glasses from the 9<sup>th</sup> to 8<sup>th</sup> centuries BC housed in the British Museum clearly illustrates this case (Reade *et al.* 2005). That study revealed that artisans manufacturing glass at Nimrud at that time increased their skills as new resources became available and adjusted their use of different raw materials within the new economic, political, and social contexts. The reasons for such a shift represent an area of research with great potential. Was it due to the collapse of palace economies resulting in limited access to old resources, or was it more cost-efficient and advantageous for artisans to operate with new resources? Shifts in raw material usage also indicate changes in the technological knowledge of such artisans who had to learn how to manipulate new resources to produce goods of similar typology, color, and material properties.<sup>2</sup> These questions certainly require further research, as concurrent changes in raw materials for both metal and glass industries in history are not likely to be coincidental.

From the Iron Age onwards, the use of natron as flux in vitrified materials and glasses became widespread in the ancient Near East and continued to be so until the 7<sup>th</sup> to 9<sup>th</sup> centuries AD. After the 9<sup>th</sup> century AD, a reversal occurred, leading to the replacement of natron by plant ash. This turnaround is linked to an increase in Islamic glass production, in which plant ash was preferred as a soda source (Freestone 2002; Henderson *et al.* 2004; Degryse and Schneider 2008; Degryse *et al.* 2010). Although the reasons why Islamic glassmakers preferred plant ash over natron have not been fully investigated, it is possible that the ever-increasing demand for natron for other purposes, climate change, and political events around the Wadi Natrun delta were contributing factors (Shortland *et al.* 2006: 527-528).

Much more to the point here is that the major change in production strategies for ancient vitrified materials during the Iron Age, from plant ash to natron, naturally raises the question of where this material came from. A majority of scholars have focused on Egypt and Wadi Natrun in the western desert as the principal natron source of the ancient world. However, although Shortland *et al.* (2006), in their brief discussion of Wadi Natrun and al-Barnuj (Egypt) as natron sources in antiquity (Iron Age to the 9<sup>th</sup> century AD) based on fieldwork and textual evidence, note how Wadi Natrun was generally considered the main source for natron, given the references in Pliny the Elder and provided in Lucas (1962), they suggested al-Barnuj

<sup>2</sup> Because scientific data sets for the Late Bronze Age (LBA) or Iron Age glasses of Anatolia are rare, it is difficult to elaborate on this issue. A project targeting this technological shift from plant ash to natron in Anatolian glasses during the transition from the LBA to Iron Age will be covered in the author's dissertation.

as another possible important source for this mineral in antiquity. They also point out that the Egyptian sources of natron are not unique and mention Macedonia, Lake Van<sup>3</sup> in eastern Turkey, and the al-Jabbul lakes in Syria as major alternative sources of natron. However, they dismiss these potential alternatives as being remote locales (Lake Van), too small (Lake Pikrolimni in Macedonia), or due to the lack of further research to clarify their potential (al-Jabbul lakes) (Shortland *et al.* 2006).

The issue of remoteness should be addressed, for it must be emphasized that extensive trade networks existed in the Near East at the relevant time. For example, the extensive existence of Badakshan (northeastern Afghanistan) lapis lazuli in Egypt during the Middle Kingdom Period (2030-1640 BC) and even as early as predynastic times (Lucas 1962: 456), or the presence of Baltic amber in the Late Bronze Age Levant and Syria (Moorey 1994: 79-81; Mukherjee *et al.* 2008) among other goods traded from distant areas to Egypt and inner Syria, clearly indicate a well-established trade network with remote areas. Against this backdrop of such well-established long-distance trade networks in the Bronze Age, we should question the rejection of alternative natron sources without further research and collaborating evidence. Even if one considers Lake Van far from Egypt and the Levant, it was in fact a major source of natron in northeastern Anatolia and could well have served as a source for artisans producing glass or vitrified materials in that region beginning in the early Iron Age.

#### NATRON SOURCES IN LAKE VAN AND ITS PERIPHERY

Important to any discussion of vitrified industries in Anatolia are finds from Urartu, where the Urartian fortresses of Ayanis and Çavuştepe had extensive luxury materials (Fig. 2), and Neo-Assyrian sites of northern Mesopotamia such as Nimrud and Assur, as well as Hasanlu in western Iran. Recent archaeological and scientific research on vitrified materials (Egyptian blue) of the Iron Age kingdom of Urartu, around Lake Van, reveals the earlier use of local sources (Ingo *et al.* 2013), which may well include the use of natron from the lake and its peripheral deposits.

An extensive glazed pottery and brick production, which is a branch of vitrified material manufacture, is recorded in Assyria (Moorey 1994: 199). Archaeological finds at Nimrud (Turner 1955: 57, 59; Mallowan 1966: 180), Assur (Barag 1970), and Hasanlu (Porada 1965: Pls. 31, 33) show the importance of vitrified materials to both of these Iron Age polities.

Assyrian written records mention the word *būšu* for glass or a type of glass in ritual texts. A glass vessel designated in a ritual tablet (*VAT* 8005: 17) found in Assur has a duplicate in Sultantepe (*STT* 1 88 X 26 and 34), which is located ca. 25 km northwest of Harran in southeastern Turkey (Oppenheim 1970: 16). Those ritual texts mention containers called DUG *būšu*, which are placed on sacrificial tablets.<sup>4</sup> The Assyrian king Tiglath-Pilaser I (1115-

<sup>3</sup> Unfortunately, Shortland *et al.* (2006) erroneously refer to Lake Van as located in Armenia; it is located in the Van Province in Turkey.

<sup>4</sup> A glass bottle was found with a cuneiform tablet in Sultantepe (648-610 BC) together with Assyrian glazed pottery ca. 25 km northwest of Harran, (Llyod and Gökçe 1952: 31, 39, 41). The tablet lists wine and regular





Fig. 2. Lake Van with its peripheral resources and ancient settlements.

1077 BC) mentions his place with glazed bricks in Nineveh, while Assurnasirpal II (883-859 BC) also describes his new palace as decorated with blue-glazed bricks. The king of Assyria, Assurbanipal (668-627 BC) also mentions using red- and blue-glazed bricks in his constructions (Oppenheim 1970a: 16-17 and references therein). Furthermore, the largest and most informative group of textual records on glassmaking comes from the library of Assurbanipal (Oppenheim 1970b).<sup>5</sup> These tablets provide information on the ritual and practical background on glassmaking, were considered the copies of earlier originals (Oppenheim 1970b), as plant ash was noted during the period of natron use as the soda source for vitrified material industries.

A potential source that may have played an important role in provisioning natron to these areas is Lake Van (43°E, 38.5°N) situated on the eastern Anatolian high plateau of Turkey (Kadıoğlu *et al.* 1997). The soda content of the lake is attributed to post-volcanic activities in the region (Degens *et al.* 1984) and the lake's carbonate content was found to be much higher than seawater (Kempe *et al.* 1978:41-42, Tables 4a-b, 5) (Fig. 2). During the later Greek and Roman periods, Strabo, in his *Geography* (1961: 327), refers to the collection of natron during the 1<sup>st</sup> century BC around Lake Van. Another reference in the 12<sup>th</sup> century AD by Eustathius pointed out the use of natron from Lake Van during the 2<sup>nd</sup> century AD (1976: 387-388). Based on those records, Lake Van was almost certainly a source of natron as early as the 1<sup>st</sup> century BC. Furthermore, documentation shows that natron was extracted for use in soap produc-

offerings on one side and payments of silver on the other (Gurney 1953: 21-25).

<sup>5</sup> The details of glassmaking texts are beyond the scope of this article. For transcription and translation of the texts, see Oppenheim (1970b).

tion (Öztürk 2010) during the Ottoman Empire. However, although Lake Van was certainly a natron source from the Roman period onwards, the possibility of its earlier exploitation has not been thought likely (Shortland *et al.* 2006: 524).

Other possible natron sources exist around Lake Van. About 30 km east, Lake Erçek also represents a potential natron resource. Unfortunately, it is not clear whether this source was used in ancient times (Suner 1998). Another overlooked source in this region is Lake Arin (38°48'54"N and 42°58'36"E,) in the Bitlis province, which is known in Turkish as Soda-lı Göl, meaning 'lake with soda' (Ataman *et al.* 1985: 86).<sup>6</sup> Because the lake is industrially non-productive, it was not considered a possible natron source in modern times. On the other hand, Suner (1998) estimates that Lake Van contains almost 6 billion tons, Lake Erçek 15 million tons, and Lake Arin 1 million tons of sodium carbonate. Having such great capacities of sodium carbonate, these lakes should not be disregarded as potential resources either in modern or ancient times. Considering that the Iron Age kingdom of Urartu had established its capital Tushpa around Lake Van, the exploitation of soda sources by Urartian craftspeople seems logical.<sup>7</sup>

Archaeological excavations together with scientific research provide promising evidence for local vitrified material industries around the Urartian region. Excavations at the Ayanis Fortress (673-653 BC) and Çavuştepe yielded blue wall paintings described as 'Lake Van Blue' and blue pigments were recovered in powder form at several parts of the Urartian fortress at Ayanis (Reindell 2001; Çilingiroğlu 2014). Ingots of blue pigments were also found in the Bastam Fortress (Kroll 1988: 157-158, Fig. 2:16-7), whereas two complete ingots 7-8 cm long and 3-4 cm wide were recovered from the temple area in the Ayanis Fortress and in the zone named *asihusi* (Çilingiroğlu 2007: 187-196). In the temple area, pale blue painted walls were also recovered, indicating local decorative use of the pigment in this significant structure (Çilingiroğlu 2001: 38; Ingo *et al.* 2013: 4284-4285, Fig. 2).

Chemical analyses<sup>8</sup> of these artifacts show they are blocks of Egyptian blue ( $\text{CuCaO-Si}_4\text{O}_{10}$ ), which is a product of the vitrified material industry (Ingo *et al.* 2013) that first appeared in Egypt during the 4<sup>th</sup> Dynasty (2613-2494 BC) (Finegan 1979: 208-209). Egyptian blue is a form of frit made by fusing silica, calcium (lime), and soda at around 800-900°C. Its blue color is from adding copper as a colorant. Although the ancient name of Egyptian blue has not yet been established, Oppenheim (1970a: 12-13) suggests that the designation  $\text{NA}_4\text{ZA.GIN}$  could refer to well-attested Egyptian blue of the first millennium BC based on its appearance in a Neo-Babylonian period tablet (*YOS 6 168*) dated to 550 BC. Further, a later dated decorative wall peg of Darius I (521-486 BC) made out of Egyptian blue was found with an inscription "peg of  $\text{NA}_4\text{ZA.GIN}$  made in the household of Darius, the king," supporting Oppenheim's arguments attesting to the word for Egyptian blue (Matson in Schmidt 1957: 133).

<sup>6</sup> Coordinates taken from the governmental web page of the Ministry of Forests and Water: <http://www.turkiyesulakalanlari.com/arin-golu-sodali-gol-bitlis/>.

<sup>7</sup> Unfortunately, there are few publications on Urartian glass or vitrified materials. Urartians are known for their developed metallurgy but their skills in vitrified material manufacture warrant further research.

<sup>8</sup> Chemical analyses of these samples were made by SEM-EDS, XRD, and Uv-Vis-NIR, micro-Raman, and an optical microscope (Ingo *et al.* 2013: 4284).

The use of Egyptian blue pigments in wall paintings of the Ayanis Fortress could be considered a continuation of a known technique tracing back to the first half of the 2<sup>nd</sup> millennium BC, as scientific analyses on the wall paintings from Thera (17<sup>th</sup> century BC) demonstrate the use of Egyptian blue in the wall decorations (Vlachopoulos and Sotiropoulou 2012).<sup>9</sup> Analytical results of Ayanis' Egyptian blue cakes show potash and magnesia levels under 0.5%, indicating the use of natron as an alkali source (Henderson 1985; Ingo *et al.* 2013: 4286). The difference in chemical compositions between Ayanis' Egyptian blue ingots and their Egyptian counterparts hints at the possibility of local production. Samples from Ayanis show the existence of zinc and arsenic but the lack of tin, whereas Egyptian blue of Egypt does not contain zinc and arsenic but does contain tin. Similar to Egyptian blue, Urartian metal artifacts contain zinc and arsenic, pointing to a related local source (Çilingiroğlu 2014). An absence of tin in Ayanis samples indicates the use of malachite, azurite, or copper sulphides as a source of copper rather than the use of scrap metal as colorant (Ingo *et al.* 2013). Finally, cristobalite, a polymorph of quartz, was identified in the Ayanis samples. This is crucially important because cristobalite occurs in volcanic zones known to have existed around the Ayanis Fortress and Lake Van. This also supports the idea of the local production of Egyptian blue.

Although a local production district has not yet been found during the excavations around Van, the distinctive differences between the Ayanis Egyptian blue fragments and those from Egypt eliminate the possibility they were imports. The existence of locally produced Egyptian blue with local raw materials indicates local vitrified material production. Existence of such an industry relying on local natron sources points to Lake Van and its peripheral lakes (Arin and Erçek) as good candidates for procuring alkali salts. Although determining the provenance of natron used for ancient vitrified materials such as glass is difficult and problematic, it is now possible due to a newly developed scientific methodology based on boron isotopes. Boron is a trace element entering the natron-bearing vitrified materials via flux, representing an opportunity to investigate the origin of the alkali salt (Devulver *et al.* 2014). The details of this methodology are beyond the scope of this paper, however, its application for evaporate materials (i.e., natron samples of Lake Van and its peripheral lakes) offers a new way to interpret major Anatolian deposits.

#### CENTRAL ANATOLIAN 'TRONA': A POSSIBLE OPTION AS AN ANCIENT ALKALI SOURCE?

Trona is another sodium carbonate mineral found in nature, chemically known as sodium carbonate-sodium bicarbonate-2-water ( $\text{Na}_2\text{CO}_3 \cdot \text{NaHCO}_3 \cdot 2\text{H}_2\text{O}$ ). It is easily soluble in water, and depending on organic material content, its color may vary from brown to dark yellow. The color is white or transparent for pure samples. Pure trona contains almost 70%  $\text{Na}_2\text{CO}_3$ , making this mineral ideal for soda ash manufacture (DPT 2001: 72-73, Table 2). Trona could be used for producing soda with a simple process based on heating. By heating the trona mineral up to 200°C, an easily attainable temperature by ancient methods, natron could

<sup>9</sup> Wall paintings of Hattusha and Tell el-Daba are under study to investigate the vitrified material character of the samples (personal communication, Constance von Rüden, November, 2014).

be produced. This simple procedure makes trona a practical raw material for acquiring natron manufacturing soda.<sup>10</sup>

Primary trona sources are documented in Egypt in Fazda, Hamra, Khadra, and Barnuj I (Shortland *et al.* 2006: 525).<sup>11</sup> However, other trona sources easily available to ancient craftspeople certainly existed in close proximity to central Anatolian and eastern Mediterranean centers (Fig. 3). Trona sources north of Beypazari, located almost 100 km west of Ankara, were first discovered in 1979 during coalmine surveys by the Turkish General Directorate of Mining and Mineral Research and Exploration and documented as the world's second largest known resource<sup>12</sup> with a potential of 250 million tons of reserve (Suner 1998). Formation of this reserve dates to the Middle and Upper Miocene (ca. 7.2-14.0 Mya) and includes a zone of almost 8 km<sup>2</sup> (DPT 2001: 75). These reserves are now used for the production of soda ash and its derivatives. In addition, two newly discovered sources on the periphery of Ankara (Kazan and Sincan), representing a potential reserve of 650 million tons of trona, have been exploited by a commercial mineral company since 2001.<sup>13</sup>

These resources must have been readily available to Phrygians, Lydians, and Lycians in the Iron Age as well as Roman, Byzantine, and Islamic glass artisans in later times.<sup>14</sup> Among the Iron Age settlements in central Anatolia, local glassmaking is suggested based on archaeological findings at Gordion, the capital of Phrygians from as early as the late 8<sup>th</sup> century BC into Hellenistic times (Jones 2006: 21, 22, 25). This archaeological evidence of local production raises questions on the use of local resources, which may well include central Anatolian alkali salt sources. Further archaeological research at these sources is needed to determine the possibility of ancient exploitation and their use in local industries including vitrified material technologies in central Anatolia. In



Fig. 3. Trona resources in central Anatolia and the location of the Iron Age settlement of Gordion.

<sup>10</sup> For chemical reaction mechanism obtaining natron from trona please refer Ataman *et al.*: 1985: 85.

<sup>11</sup> Shortland *et al.* (2006) also documented minor mineralization of trona in Egypt.

<sup>12</sup> The biggest reserves are in Wyoming, Colorado, and California.

<sup>13</sup> <http://www.cinergroup.com.tr>

<sup>14</sup> For detailed scientific research on these glasses, please refer to Bass (1984); Brill (1999); Brill and Stapleton (2012); Degryse *et al.* (2006); Degryse and Schneider (2008); Freestone *et al.* (2009); Henderson (1985, 2000, 2013); and Reade *et al.* (2005).



addition, new scientific techniques including boron isotope analysis should be applied both on evaporate minerals collected from central Anatolian trona sources and vitrified material assemblages of aforementioned ancient societies to obtain more accurate conclusions.

## CONCLUSIONS

Research on natron and trona sources in Turkey is directly linked to the economic value and exploitation strategies of these minerals that are crucial for manufacturing glass, detergent, soap, paper, photography, chemistry, metallurgy, and many other industries. However, there has so far been very little focus on these Anatolian sources in the archaeological literature. As discussed above, natron and trona were crucial raw materials for the production of ancient glass from the Iron Age onwards. With its extensive reserves of natron in and around Lake Van, as well as the peripheries of Ankara with abundant trona sources, eastern Anatolia should be considered as a possible source for this material in addition to Egypt and its well-documented natron sources like Wadi Natrun.

Scientific investigations of Egyptian blue cakes found in the Ayanis Fortress indicate that there was a local vitrified material industry in Anatolia using natron as an alkali source. In light of recent research, previous suggestions of plant ash usage in Mesopotamia, Iran, and Central Asia due to a lack or the restricted availability of natron should be reconsidered. The possible local production of Egyptian blue with natron in the Urartian zone of influence shows that a shift from plant ash to natron also occurred in this region, as Lake Van and its peripheral lakes have the capacity to provide sufficient amounts of this white evaporate mineral.

Lake Van, Lake Erçek, and Lake Arin could have been used by Urartians, while central Anatolian sources may have been worked by the craftspeople of Phrygia, Lydia, and Lycia in the Iron Age. Consequently, I would argue that these resources were used in earlier periods of antiquity. However, this hypothesis needs to be proven with firm archaeological evidence and scientific examination of the chemical composition of ancient glass, slag, and other remains of vitrified material and glass production. Further cooperative and interdisciplinary research into the natron and trona sources with an archaeological perspective will illuminate the unknown reserves of ancient vitrified material producers as well as the identity of glassmakers.

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## REFERENCES

- Atama, G., Tuncer, S. Güngör, N. 1985 — Trona ve soda örneklerinin analiz yöntemlerinin irdelenmesi. *MTA Dergisi*: 85-96.
- Barag, D., 1970 — Mesopotamian Core-formed Glass Vessels (1500-500 BC). In: A.L. Oppenheim (ed.), *Glass and Glassmaking in Ancient Mesopotamia*, 131-199. Corning Museum of Glass Monographs Volume III. Corning: Corning Museum of Glass Press.
- Barag, D., 1985 — Catalogue of Western Asiatic Glass in the British Museum. Volume 1. British Museum Publications Limited, London.
- Barkoudah, Y., and J. Henderson., 2006 — Plant Ashes from Syria and the Manufacture of Ancient Glass: Ethnographic and Scientific Aspects. *Journal of Glass Studies* 48: 297-321.
- Bass, G.F., 1984 — The Nature of the Serçe Limanı Glass. *Journal of Glass Studies* 26: 64-69.
- Brill, R.H. 1999. Chemical Analyses of Early Glasses. Volume 2: The Tables. Corning: Corning Museum of Glass.
- Brill, R.H., and C.P. Stapleton, 2012 — Chemical Analyses of Early Glasses. Volume 3: The Years 2000-2011, Reports and Essays. Corning: Corning Museum of Glass.
- Çilingiroğlu, A. 2001. Temple Area. In: A. Çilingiroğlu and M. Salvini (eds.), *Ayanis I: Ten Years' Excavations at Rusahinili Eiduru-kai, 1989-1998*, 7-65. Rome: Documente Asiana VI
- Çilingiroğlu, A., 2007 — Ayanis Kalesi depo odaları ile ilgili bazı öneriler. In: A. Tibet, E. Konyar, T. Tarhan and A. Colby (eds.), *Muhibbe Darga Armağan Kitabı*, 187-196. İstanbul: Sadberk Hanım Müzesi.
- Çilingiroğlu, A., 2014 — Ayanis Kalesinde Mısır mavisi (Egyptian Blue). In: A. Özfirat (ed.), *Essays in Honour of Veli Sevin: A Life Immersed in Archaeology*, 137-142. İstanbul: Ege Yayınları.
- Dardeniz, G., 2014 — Alalakh (Tell Atchana Höyük): Geç Tunç Çağı'nda Cam Üretimine Ait Yeni Bulgular. 29. *Arkeometri Sonuçları Toplantısı*, Ankara.
- Dardeniz, G., in press — Sharing Technologies and Workspaces for Ceramic and Vitrified Material Production at Tell Atchana-Alalakh. In: Ç. Maner, A. Gilbert and M. Horowitz (eds.), *Festschrift presented to K. Aslıhan Yener for her 40 years of Field Archaeology in the Eastern Mediterranean*. Leiden: Brill Publications.
- Degens, E., H. Wong, S. Kempe and F. Kurtman, 1984 — A Geological Study of Lake Van, Eastern Turkey. *Geologische Rundschau* 73 (2): 701-734.
- Degryse, P., J. Schneider, U. Haack, et al., 2006 — Evidence for Glass 'Recycling' Using Pb and Sr Isotopic Ratios and Sr-mixing Lines: The Case of Early Byzantine Sagalassos. *Journal of Archaeological Science* 33: 494-501.
- Degryse, P. and J. Schneider, 2008 — Pliny the Elder and Sr-Nd Isotopes Tracing the Provenance of Raw Materials for Roman Glass Production. *Journal of Archaeological Science* 35: 1993-2000.
- Degryse, P., A. Shortland, D. De Muynck, et al., 2010 — Considerations on the Provenance Determination of Plant Ash Glasses Using Strontium Isotopes. *Journal of Archaeological Science* 37: 3129-3135.
- Devulver, V., F. Vanhaecke, A. Shortland, D. Mattingly, C. Jackson and P. Degryse, 2014 — Boron Isotopic Composition as a Provenance Indicator for the Flux Raw Material in Roman Natron Glass. *Journal of Archaeological Science* 46: 107-113.
- DPT (Turkish Government Planning Commission), 2001 — Sekizinci beş yıllık kalkınma planı, Madencilik özel ihtisas komisyonu raporu, Endüstriyel hammaddeler alt komisyonu, Kimya sanayii hammaddeleri cilt II: Bor tuzları, trona, kaya tuzu, sodium sülfat, stronsiyum. Ankara: 69-87.
- Eustathius. In: M. van der Valk (trans.), *Eustathii archiepiscopi Thessalonicensis commentarii ad Homeri Iliadem pertinentes*, Vol 2. Leyden: Brill Academic, 1976.
- Finegan, J., 1979 — *Archaeological History of the Ancient Middle East*. Boulder: Westview Press.
- Freestone, I., 2002 — Composition and Affinities of Glass from the Furnaces on the Island Site, Tyre. *Journal of Glass Studies* 44: 67-77.

- Freestone, I., S. Wolf and M. Thirlwall, 2009 — Isotopic Composition of Glass from the Levant and the South-eastern Mediterranean Region. In: P. Degryse, J. Henderson, and G. Hodgins (eds.), *Isotopes in Vitreous Materials*, 31-52. Studies in Archaeological Sciences, Leuven University Press.
- Gurney, O.R., 1953 — The Sultantepe Tablets. *Anatolian Studies* 3: 15-25.
- Henderson, J., 1985 — The Raw Materials of Early Glass Production. *Oxford Journal of Archaeology* 4 (3): 267-291.
- Henderson, J., 2000 — The Science and Archaeology of Materials: An Investigation of Inorganic Material. London and New York: Routledge.
- Henderson, J., 2013 — Ancient Glass: An Interdisciplinary Exploration. New York: Cambridge University Press.
- Henderson, J., S.D. McLoughlin and D.S. McPhail, 2004 — Radical Changes in Islamic Glass Technology: Evidence for Conservatism and Experimentation with New Glass Recipes from Early and Middle Islamic Raqqa, Syria. *Archaeometry* 46 (3): 439-468.
- Ingo, G.M., A. Çilingiroğlu, G. Di Carlo, et al., 2013 — Egyptian Blue Cakes from the Ayanis Fortress (Eastern Anatolia: Turkey): Micro-chemical and -structural Investigations for the Identification of Manufacturing Process and Provenance. *Journal of Archaeological Science* 40: 4283-4290.
- Jackson, C.M. and P.T. Nicholson, 2007 — Compositional Analysis of Vitreous Materials found at Amarna. In: P. Nicholson (ed.), *Brilliant Things for Akhenaten: The Production of Glass Vitreous Materials and Pottery at the Amarna Site O45.1*, 101-116. London: The Egypt Exploration Society.
- Jones, J.D., 2006 — Did the Phrygians Make Glass? Sources of Moulded Glass at Iron Age and Hellenistic Gordion. In: K. Janssens, P. Degryse, P. Cosyns, et al. (eds.), *Annales of the 17th congress of the International Association for the History of Glass*, 21-26. Brussel: ASP - Academic & Scientific Publishers.
- Kadioğlu, M., Z. Sen and E. Batur, 1997 — The Greatest Soda-water Lake in the World and How it is Influenced by Climatic Change. *Annales Geophysicae* 15:1489-1497.
- Kempe, S., F. Khoo and Y. Gürleyik, 1978 — Hydrography of Lake Van and its Drain- age Area. In: E.T. Degens and F. Kurtman (eds.), *The Geology of Lake Van*, 30-45. Ankara: MTA Publications No. 169.
- Kroll, S., 1988 — Die Kleinfunde. In: W. Kleiss (ed.), *Bastam II: Ausgrabungen in den Uraraischen Anlagen 1977-1978*, 155-164. Berlin: Gbr. Mann Verlag.
- Liverani, M., 1987 — The Collapse of the Near Eastern Regional System at the End of the Bronze Age: The case of Syria. In: M. Rowlands, M.T. Larsen and K. Kristiansen (eds.), *Centre and Periphery in the Ancient World*, 66-73. Cambridge: Cambridge University Press.
- Lucas, A., 1962 — Ancient Egyptian Materials and Industries. London: Arnold.
- Llyod, S. and N. Gökçe, 1953 — Sultantepe: Anglo-Turkish Joint Excavations, 1952. *Anatolian Studies* 3: 27-47.
- Mallowan, M.E.L., 1966 — Nimrud and its Remains, II. London: Collins.
- Mass, J. L., M.T. Wypyski, and R.E. Stone, 2002 — Malkata and Lisht Glassmaking Technologies: Towards a Specific Link Between Second Millennium BC. *Archaeometry* 44 (1): 67-82.
- Moorey, P.R.S., 1985 — Materials and Manufacture in Ancient Mesopotamia: The Evidence of Archaeology and Art. Oxford: British Archaeological Reports, International Series 237.
- Moorey, P.R.S., 1994 — Ancient Mesopotamian Materials and Industries: The Archaeological Evidence. Oxford: Oxford University Press.
- Mukherjee, A.J., E. Roßberger, A.M. James, et al., 2008 — The Qatna Lion: Scientific Confirmation of Baltic Amber in Late Bronze Age Syria. *Antiquity* 82: 49-59.
- Nicholson, P.T and I. Shaw (eds.), 2000 — Ancient Egyptian Materials and Industries. Cambridge: Cambridge University Press.
- Oppenheim, A.L., 1970a — Glasses in Mesopotamian Sources. In: R.H.B. Oppenheim, D. Barag and A. von Saldern (eds.), *Glass and Glass Making in Ancient Mesopotamia*, 9-21. New York: The Corning Museum of Glass.
- Oppenheim, A.L., 1970b — The Cuneiform Tablets with Instructions for Glassmakers. In: R.H.B. Oppenheim, D. Barag and A. von Saldern

- (eds.), *Glass and Glass Making in Ancient Mesopotamia*, 21-68. New York: The Corning Museum of Glass
- Öztürk, S., 2010 — Osmanlı kültürel mirasında sabun. In: E.G. Naskali and H.O. Altun (eds.), *Kültür Tarihimizde Hamam*, Acta Turcica Vol. 2, 80-93.
- Porada, E., 1965 — *Ancient Iran: The Art of Pre-Islamic times*. London: Methuen.
- Reade, W., I.C. Freestone and S.J. Simpson, 2005 — Innovation or Continuity? Early First Millennium BCE Glass in the Near East: The Cobalt Blue Glasses from Assyrian Nimrud. *Annales du 16e Congres de l'Association Internationale pour l'Histoire du Verre*: 23-27.
- Rehren, T., 2000 — New Aspects of Ancient Egyptian Glassmaking. *Journal of Glass Studies* 42: 13-24.
- Rehren, T. and E.B. Pusch, 2005 — Late Bronze Age Glass Production at Qantir-Piramesses, Egypt. *Science* 308: 1756-1758.
- Reindell, I., 2001 — Conservation of Bronzes and Technical Remarks. In: A. Çilingiroğlu and M. Salvini, Ayanis I: Ten Years' Excavations at Rusa-hinili Eiduru-kai, 1989-1998, 381-390. Rome: Documente Asiana VI.
- Schmidt, E., 1957 — *Persepolis 2*. Chicago: University of Chicago Press.
- Shortland, A.J. and K. Eremin, K., 2006 — The Analysis of Second Millennium Glass from Egypt and Mesopotamia, Part 1: New WDS Analyses. *Archaeometry* 48 (4): 581-603.
- Shortland, A.J., N. Rogers and K. Eremin, 2007 — Trace Element Discriminants Between Egyptian and Mesopotamian Late Bronze Age Glasses. *Journal of Archaeological Science* 34: 781-789.
- Shortland, A.J., L. Schachner, I. Freestone, et al., 2006 — Natron as a Flux in the Early Vitreous Materials Industry: Sources, Beginnings and Reasons for Decline. *Journal of Archaeological Science* 33: 521-530.
- Smith, R.W., 1963 — Archaeological Evaluation of Analyses of Ancient Glass. In: F.R. Matson and G. Rindone, *Advances in Glass Technology*, Part 2, 283-290. New York: Plenum Press.
- Strabo. In: H.L. Jones (trans.), *Strabo: Geography*, Volume V. Cambridge: Harvard University Press, 1961
- Suner, F., 1998 — *Bey pazarı Trona Yatakları*. PhD Dissertation, Istanbul Technical University.
- Tite, M.S. and M. Bimson, 1989 — Glazed Steatite: An Investigation of the Methods of Glazing Used in Ancient Egypt. *World Archaeology* 21: 87-100.
- Turner, W.E.S., 1955 — Glass Fragments from Nimrud of the Eighth to the Sixth Century BC. *Iraq* XVII: 57-59.
- Turner, W.E.S., 1956a — Studies in Ancient Glasses and Glassmaking Processes, Part III. The Chronology of the Glassmaking Constituents. *Journal of Society of Glass Technology* 40: 39T-52T.
- Turner, W.E.S., 1956b — Studies in Ancient Glasses and Glassmaking Processes, Part V. Raw Materials and Melting Processes. *Journal of Society of Glass Technology* 40: 277T-300T.
- Vandiver, P., 1982 — Mid-second Millennium BC Soda-Lime-Silicate Technology at Nuzi (Iraq). In: T. Wertime and S. Wertime (eds.), *Early Pyrotechnology*, 73-92. Washington, DC: Smithsonian Institution.
- Vlachopoulos, A. and S. Sotiropoulou, 2012 — The Blue Colour on the Akrotiri Wall-Paintings: From the Palette of the Thera Painter to the Laboratory Analysis. In: J.M. Kelder, J.P. Stronk and M.D. de Weerd (eds.), *Tananta*, Proceedings of the Dutch Archaeological and Historical Society Volume XLIV, 245-272. Amsterdam: Dutch Archaeological and Historical Society.
- Yener, K.A., 2000 — *The Domestication of Metals: The Rise of Complex Metal Industries in Anatolia, Culture and History of the Ancient Near East*. Leiden, Boston: Brill.
- Yener, K.A., 2010 — Bulgarmaden: Thoughts About Iron, Bolkaradağ and the Taurus Mountains. In: D. Collon (ed.), *Festschrift for David Hawkins*. *Iraq* 72: 183-191
- <http://onlinelibrary.wiley.com/doi/10.1111/arc.12156/abstract;jsessionid=5D47E3B-6D84111E1F4A1EF3738D7564E.f01t03>,

## THE 2012 TO 2014 EXCAVATION CAMPAIGNS AT SITE LE, SAGALASSOS. The structural remains and general phasing

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### *Abstract*

*In recent years, the Sagalassos Archaeological Research project of the University of Leuven has coordinated a research programme aimed at the community of ancient Sagalassos. Understanding in more detail how the ordinary townsfolk lived and worked in antiquity forms an important aspect of this research. With this aim in mind, archaeological excavations were launched at Site LE in 2012. Here, a dense stratigraphical sequence documenting changes within part of a neighbourhood in the upper parts of the ancient town was documented. An original domestic quarter changed character resulting from the erection of public buildings in Roman Imperial times, such as the Neon Library and the unidentified public building of Site LE. In late Roman times, the structures of Site LE were thoroughly re-organized, possibly including a house and a textile workshop. A very well preserved coroplast workshop formed part of this arrangement too. Upon abandonment of these domestic and artisanal units, Site LE was overhauled one last time. Remains of an early Byzantine professional bakery were identified within the re-organized premises. This paper wishes to present our initial understanding of the site, its phases of architectural and functional organisation as well as the detail of the consecutive structures. As such, the paper represents the framework for continued study and future publication of the at times fairly unique find assemblages, such as the materials found within the late Roman coroplast workshop.*

### INTRODUCTION

The following presents the preliminary report on three years of archaeological excavation at Site LE (Library East) in ancient Sagalassos, for the campaigns of 2012 to 2014. In 2012, a new excavation programme was initiated at Sagalassos with the aim to improve knowledge on how the ordinary townsfolk, the majority of the population of each ancient community, lived, worked and died in antiquity. Site LE is located immediately to the east of the so-called Neon Library, which itself was situated on one of the main streets of Roman Imperial Sagalassos, linking the area of the Upper Agora with that of the Theatre and beyond, into Eastern Suburbia. As small portions of a structure adjoining the Neon Library to the east were already excavated in 1991 and 1993 (Waelkens 1993: 48; Waelkens *et al.* 1995: 59-61), revealing well-preserved remains of what was thought to be a late Roman house, destroyed by fire, Site LE figured prominently in the new thematic approach to the Sagalassos excavation campaigns.

The occupation history of Site LE can be subdivided into four main phases: 1. the earliest interventions and management of the terrain can be dated to around the start of the Com-



mon Era, when this zone was laid out in terraces resulting from a phase of urban expansion, 2. the construction of an unidentified public building around 200 CE and its use, 3. the conversion of the latter structure into smaller units during the later 4<sup>th</sup> century CE, their use and abandonment around 500 CE, and 4. the redesign and reuse of the area during the 6<sup>th</sup> century CE.

#### PHASE I

When the unidentified public building was constructed against the east side of the Neon Library, around 200 CE, the construction workers partially or completely removed existing features, and cut through older layers. Although the evidence is patchy, the presence of terraces and terrace walls could be reconstructed in the general area, as well as their use in supporting the laying-out of a new domestic quarter, around the start of our era (Fig. 1).

#### The Terraces

Study and comparison of deposits excavated in 1993 (Waelkens *et al.* 1995: 54-56, for the architecture; Poblome 1999: 189, 253, 287, 311, for the tableware assemblage and chronology) to the north of the library, below the floor level of the unidentified public structure, and in the zone immediately to its NE revealed the contemporaneity of the material and the intent of the operations. The earliest interventions and management of the terrain can be



Fig. 1. Overview of the walls and features associated with Phase I of Site LE.



dated to around the start of our era, when the area of Site LE was being organized in terraces. A terrace level can be tentatively deduced connecting the partially excavated (terrace) wall in polygonal masonry to the north of the Neon Library, and the upper terrace wall(s) within the recent excavation area of Site LE. The terrace walls, with a SW-NE orientation in the west, gradually bend in the east to a W-E orientation, following the natural curvature of the mountain slope. However, only small parts of the upper terrace were explored in 1993 as well as more recently within the limits of Site LE, invoking caution when making functional and chronological interpretations.

The oldest layers, used to create the original terraces, were preliminary dated to between 50 BCE and 50 CE. Not one layer contained only (late) Hellenistic material or early Roman Imperial pottery, explaining the fairly wide chronological allocation. In general, the terracing fills contained few or no anthropogenic indicators. The layers were mostly a fairly compact, yellow-brown to grey, silty sand, with limestone and some charcoal.

To the north of the back wall of the later public building, two walls formed part of an earlier building and/or terrace wall(s), within the recent excavation area (Fig. 2). A very short stretch of N-S wall was preserved, which had not disappeared when the northern back wall of the later public building was constructed. The other, E-W wall was identified while cleaning the north profile of the trench. Its appearance and construction technique resembled the polygonal (terrace) wall found behind the Neon Library in 1993, and could possibly be its continuation. Because of the orientation and height of the section, this wall could only be traced over a length of 1.5m. The upper 1.2m still held some patches of a plastered substrate of grey mortar containing tile aggregate. The lower 0.4m was covered with 0.03m thick grey plaster.



Fig. 2. (Terrace) walls of the original building phase at Site LE.

What little evidence there is available, seems to indicate that this zone was laid out in terraces in order to support a phase of urban expansion. Remains of possible houses were investigated to the north of the Neon Library (Waelkens *et al.* 1995: 54-56), underneath the unidentified public building, and in the NE part of the recent excavation area, registered as Spaces 6 and 7. The excavated remains confirm earlier observations, made during the intensive urban surveying campaign of 1999, indicating that a new domestic quarter was laid out in this part of Sagalassos around the start of our era (Martens *et al.* 2008: 136-138). Probably, the

construction of the Fountain House *c.* 25 BCE, to the SW of Site LE, formed part of the same urban master-plan, in order to accommodate the increasing urban population.

### Room 1

A sounding (0.8m wide and 3.3m long) was dug in Room 1, which was installed within the remains of the unidentified public building, alongside the southern part of its eastern wall, and cutting through its later Roman floor (Fig. 3). Bedrock could not be reached, but may have been close as many ophiolite clay chunks were present in the lowest layer. The entire stratigraphy was considered as fill, as no floor level could be identified. The pottery within the two lower fill packages was dated preliminary to the end of the 1<sup>st</sup> century BCE/early 1<sup>st</sup> century CE.



Fig. 3. View of the sounding in Room 1.

The structural remains that could be linked to this phase were the lower part of the northern back wall, the lower part of the partition wall between the later Rooms 1 and 2, and the lower part of the southern façade. The walls were built in the same technique of mortared limestone rubble covered with a smooth mortar coating. These walls join into one another and were preserved up to the same height, on top of which the later phases were

constructed. The sondage revealed that the lower 40cm of the partition wall between the later Rooms 1 and 2 had a different construction technique of limestone rubble and an embossed ashlar (0.2 x 0.4m) mortared in a dark grey, coarse mortar and no coating. Probably this was the foundation of the wall.

The sounding in Room 1 revealed that the original terrace fill layers were covered by another fill, datable to the first half of the 1<sup>st</sup> century CE. This fill, together with the top of an ashlar and an upside down Doric column base, created a level of non-deposition or possibly a floor level. There was also a mortared protrusion of 0.1-0.15m visible in the SE corner of the room at more or less the same height. No finds could be related to this level.

In this way, the sounding provided evidence for the earliest building activity in this area, implying the presence of a structure (house?) around the start of the Common Era, on top of which the unidentified public building would be constructed. Considering the relative depth of the walls and the fact that no traces were noticed of a door or other entrance arrangement, possibly these remains could have formed part of a cellar.

## Spaces 6 and 7

Almost immediately underneath the topsoil and to the east of the later public building, two rectangular N-S orientated spaces were uncovered (Fig. 4). Space 6 measured *c.* 1.37m in width and Space 7 *c.* 2.5m in width. The northern limit of both spaces, which were probably rooms of a house, could not be determined, due to the later installation of an alley with water channel partially covering the spaces. Presumably Spaces 6 and 7 continued up to the terrace wall, which sustained an upper terrace house, of which Space 5 was partially excavated. Post-abandonment seismic activity or an unknown pressure from the East caused the southern common wall of Spaces 6 and 7 to shift 15 to 30cm to the West, pushing the sidewalls askew.



Fig. 4. Spaces 6 and 7.

The walls of Spaces 6 and 7 were constructed in different techniques and none of these interlock; this could imply pragmatism or a relative building chronology. Not enough of the ground plan was excavated to comprehend its logic or functional layout. The south wall (width: 0.7m, length: 3.35m) continued towards the east, outside the excavation area. Its western end made a 90° angle to the south, continuing for another 1.6m.

This segment was to be incorporated into the east wall of the later public building. The south wall displayed three courses: a 0.55m mortar foundation with small to medium sized limestone rubble, a 0.46m course of medium sized limestone rubble finished with a rough mortar coating, and a 0.52m course of medium to large limestone rubble with a smooth mortar coating covering the edges of the stones. A 2-3cm protruding edge between the middle and upper course possibly indicated the presence of a floor, although no stratum could be associated with it. The sidewalls of Spaces 6 and 7 were built against the south wall. These were only partially exposed.

In order to study the phasing of the layers inside both spaces, three profiles were documented: a north profile in Space 7 and an east profile in both spaces. As a result, the terrace fill could be distinguished from a level of non-deposition, and the post-abandonment fill.

Although no actual floor was present in Space 6, a horizontal layer of non-deposition could be distinguished. A 4-8cm beaten earth floor was identified in Space 7, on top of the terracing fill. Strikingly, the floor contained amounts of kiln waste materials, giving it a red patchy colour. The pottery within the floor was preliminary dated to 25 BCE-25 CE. The material immediately on top of the floor was attributed to the first half of the 1<sup>st</sup> century CE. This floor was situated more or less at the same height as the level of non-deposition in Space 6.



Upon abandonment of the Space 6, fill material seems to have been thrown in from the upper terrace level. The pottery within the dumping fills in Space 6 did not post-date 50 CE, suggesting a fairly short use-life for (this part of) the house. Part of the dumped materials consisted of horn cores – mainly of goat – with traces of chopping and sawing and could therefore be related to horn-working activities. Additionally, experimental shapes of 1<sup>st</sup> century CE Sagalassos red slip ware, usually associated with the Potters' Quarter, were recognized in the dump material.

## PHASE 2

Shortly after 120 CE, the Neon Library was inaugurated, adding new functions to this urban quarter. In a next phase, a new public building was constructed at Site LE, further changing the appearance of the neighbourhood. In addition to the installation of the building, the street in front of it seems to have been converted into an esplanade, and new water infrastructure constructed. At the end of this phase, the raised sidewalk in front of the public building was re-modelled (Fig. 5).

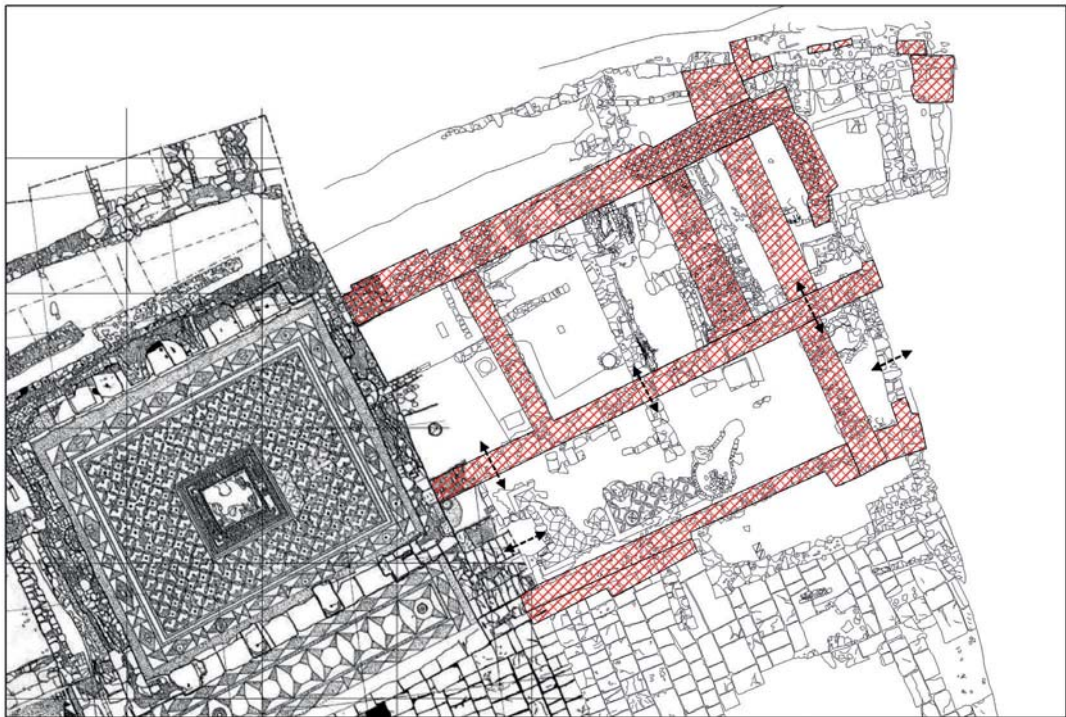


Fig. 5. Overview of the walls and features associated with the Phase 2 public building and water infrastructure.

### The Unidentified Public Building

The new building was partially dug into the slope, and erected on top of the walls of the earlier cellar/house(?) as well as against the east wall of the Neon Library. Its façade was aligned with, but placed a little to the back compared to that of the library. As mostly structural remains were preserved and hardly any furnishings or other contemporary material, unfortunately, the building's original function is still unclear. Occupation and/or floor levels were mostly removed by later Roman activities. Mainly the building's size and plan, and its construction and elaboration seem to indicate an original, public function. It measured



Fig. 6. *Opus vittatum* as used in the unidentified public building.

*c.* 18.15m in length and *c.* 8.25m in width. The inner space was *c.* 17.15m by *c.* 6.5m. The construction technique of the back wall, the northern part of the east wall, and the eastern part of the south wall continued that of the wall shared with the Neon Library: solid and well-preserved *opus vittatum*, or mortared rubble inter-layered with brick (Fig. 6). None of the walls were integrated, though, with the north wall abutting the east wall of the library and the east wall of the public building abutting its northern, back wall. Although extensively modified in its upper parts, the threshold level of the southern façade and two moulded pilaster bases seem to belong to this phase as well. When visible, the lower parts of the outside of the threshold blocks were left roughly worked, possibly indicating the original presence of a single step along the length of the building.

Presumably during the same building operation, a 4.5 to 4.8m wide sidewalk was constructed in front of the public building. Two to three rows of finely cut ashlar were preserved at the bottom of the southern support wall, aligning the street or esplanade in front (Fig. 7). Although no datable material was associated with the ashlar, this building technique was not used in later Roman times at Sagalassos, suggesting a Roman Imperial chronology for their construction. The raised, open sidewalk continued the line of the one in front of the Neon Library. A flight of seven steps, negotiating the level difference, connected both walkways.

In its conception, the building was divided in three rooms: a large central room of *c.* 7.15m by 6.5m (the later Roman Rooms 2 and 4) and two side rooms of *c.* 4m by 6.5m (the later Roman Rooms 1 and 8). Only the west room (Room 1) kept its original dimensions. The current partition wall between Rooms 4 and 8 is a late Roman addition: the original wall of





Fig. 7. The finely cut ashlars at the bottom of the support wall for the sidewalk in front of the public building.

wider door (width: 2.25m), in its axis, flanked by two smaller ones (width W door: 2.05m, width E door: 2.04m). Both side rooms are presumed to have had an external entrance, but later modifications hamper reading the original situation.

In the front part of the central room, about 2.3m east of the eastern wall and 1m north of the southern façade, a round limestone vessel was installed into the floor. Its edge was covered with mortar and lined with tile fragments. The vessel had an outside diameter of 0.46m, was 0.62m high on the outside and 0.48m deep. The inside surface was worked smooth. A sounding was made between the vessel and the southern façade revealing that the stone vessel formed part of the original floor arrangements of the public building (Fig. 8). The vessel itself was cracked, chipped and broken in places, meaning it was given a next use-life as part of the unidentified building.

The importance of the central room was further stressed by its mosaic floor, which was largely removed in later Roman times. Small patches of mosaic were found in the NE corner of the later Room 2 and underneath its partition wall with Room 4 (Fig. 9). The level of the



Fig. 8. The recycled stone vessel inserted into the floor of the central room of the public building.

Phase 2 was located about 1m to the west. Two identical pilaster bases formed part of the southern façade at the point where the division walls between the later Rooms 1 and 2 and the original division wall between later Rooms 4 and 8 join the façade. The finding of a stone wall foundation running north from the eastern pilaster base supports this observation. In this way, the plan of the building was symmetrical. The largest, central room

was accessed through a

mosaic floor coincided with that of the bottom of the threshold ashlar in the southern façade, as well as with a 0.1-0.2m mortared rubble protrusion arranged in the west and back walls. The preserved part of the mosaic floor displayed a square, geometrical pattern of black and white *tesserae* (1x1x1cm). As far as visible, the decoration of the pavement seems to have included (rows of?) tangent poised squares, carried out in black on a white background (R 15a1). Unfortunately, neither the entire geometric pattern, nor the figurative scenes the former may have originally been combined with could be reconstructed. Since the preserved figures were geographically and chronologically widespread, these did not provide relevant indications for the construction date of the floor.

In addition to the *in situ* tessellated fragments, sections of the substrate without *tesserae* were preserved in large parts in the northern section of the later Room 2, but were cut and removed in Room 4. Particularly in the area underneath the later eastern wall of Room 2, the substrate can still be followed over a length of 4.06m. The *tesserae* were bedded in a *nucleus* of pink mortar (thickness: 0.04m), on top of a pink mortar *rudus* (thickness: 0.04m) that was supported by a *statumen* consisting of rubble stones (thickness: 0.23m).



Fig. 9. A preserved patch of floor mosaic in the central room of the public building.

Large amounts of loose *tesserae* were found stashed in a niche-like opening, cut in late Roman times in the back wall of Room 2; this operation goes unexplained. No indications were found in either of the side rooms for a mosaic floor, or any other contemporary floor level for that matter.

As little or no material could be linked to the original function of the public building, also its chronological allocation is not straightforward. The available relative chronological indicators are structural in nature: part of the walls of the building were erected on top of earlier walls of the Phase 1 house/cellar(?), and the *opus vittatum* back wall was built against the east wall of the Neon Library. As a result, the public building post-dated the construction of the library, or rather the first re-arrangement phase of the latter. During that operation at least the side walls were rebuilt in the mentioned technique and covered with decorated plaster panels. The architectural style of the plaster half-pilasters and mouldings was dated to the later 2<sup>nd</sup> or early 3<sup>rd</sup> centuries CE (Waelkens *et al.* 1995: 54), providing a *terminus post quem* for the construction of the unidentified public building. The identical construction technique of the *opus*

*vittatum* walls, following the technique of the east wall of the library, seems to suggest relative contemporaneity. Another *terminus post quem* was provided by the most recent stratum which was cut by the building of the north back wall of the public building, with material datable to the 2<sup>nd</sup> century CE. It is an open question whether the same wall building technique and contemporaneity of construction, shared between the Neon Library, Site LE's public building, and the less well documented structure adjoining the library to its west, does not imply some sort of shared original function. Quite often libraries were structures integrated into larger complexes such as sanctuaries, or at least structures composed of different units, which, apart from housing a collection of scrolls, provided accommodation for archives, teaching or learned discussion. The example of Hadrian's Library in Athens comes to mind (Gros 2011: 362-374). Due to lack of proof, related functions for these establishments can be but a suggestion.

### The Esplanade

The Neon Library, the unidentified public building and its sidewalk were constructed alongside a street, which ran down from the Theatre in the direction of the upper town (Fig. 10). In the eastern part of the excavated area, the street sloped upwards at an angle of 8-9° and was built by lying down rows of same-sized limestone slabs, alternating between smaller and wider widths of the stone rows.

Upon completion, the street is perhaps better defined as an esplanade, as it reached a width of *c.* 18m in front of Site LE's public building and walkway. The preserved southern edge of the esplanade continued the line of the terrace wall constructed in front of the late Hellenistic Fountain House.



Fig. 10. Georeferenced orthophoto of Site LE, the modern protection construction over the library and the esplanade.

Layers 4-8 excavated to the east of the Fountain House were considered as fill carrying the slabs of the esplanade, which later went missing in this area. The pottery in these layers could be dated to the second half of the 2<sup>nd</sup> century CE (Poblome 1999: 284). Recent soundings at locations of missing slabs resulted in a more mixed picture, ranging in date between *c.* 100 CE and *c.* 200 CE. More research is required to document the chronological build-up of the street.



## The Water Infrastructure

Water infrastructure could be documented in three connected parts: the E-W water channel located in the NE corner of the Site LE excavations, which connected into the vertical shaft, behind the back wall of the public building, which in its turn continued in the NW-SE water channel underneath the eastern side room of the building and its sidewalk. Its further continuation, underneath the esplanade, remains unclear.

Against the south face of the original, upper terrace wall an E-W orientated water channel was built. Only the eastern part of this channel, with a visible length of 1.5m, was still original; the central part (length: 6.3m) was a late Roman re-arrangement. During this operation, the covering of the channel was removed. The channel was constructed on top of an arranged layer of ophiolitic clay. The north wall (width: 0.43m) was made of six layers of mortared brick. Of the south wall (width: 0.6m) only one course of brick was preserved. The channel was partially built on top of the walls of Space 6. The bottom of the water channel (width: 0.43m) consisted of a 6cm thick layer of hydraulic mortar with a single course of mortared brick on top. The bottom made a steep 30° slope for the first 0.8m. After that point, the angle became more moderate, ending at the vertical shaft.

The vertical shaft (Fig. 11) was constructed as one solid and almost square structure from mortared medium-sized limestone rubble and a few brick fragments. Also the shaft was built against the original terrace wall; its other side used the northern back wall of the public building as support, providing a chronological indication. The outside of the structure measured *c.* 1.8 by 1.9m and the inside 0.61 by 0.65m. In a later stage, the top of the shaft was dismantled to the same height as the northern back wall and east wall of the public building. The water would flow in from the east. Here, the remains of an opening were found, which was covered by a 0.53m wide, partially preserved arch of mortared brick. Underneath the arch a concave gutter stone with spout was embedded with hydraulic mortar into the structure in order to guide the water into the centre of the shaft.

The bottom of the shaft was reached at 4.35m below the top of the gutter stone. The shaft connected here on its SE side into a beehive-shaped water channel, running underneath the east side room of the public building. The fill of the channel was not excavated for safety reasons: the cover was damaged or had collapsed at several points. Near the start it was possible to expose a small part of its intact floor. Here, the floor had a slope of



Fig. 11. The upper part of the shaft channelling the water to a lower level.

11°. It was constructed of mortared brick, of the same dimension as the water channel discussed previously. The sidewalls were made of medium to large-sized mortared limestone rubble. The arching cover used mostly large limestone rubble and was mortared. The channel was 0.69m wide and 0.78m high. The channel could be followed for *c.* 13.7m up to the edge of the esplanade. At that point it was closed off in the 6<sup>th</sup> century CE, resulting from the southern extension of the sidewalk, over the esplanade. The northern back wall of the public building and the channel were integrated into each other and therefore part of the same construction phase (Fig. 6).

Comparison to similar channels, partially excavated at Sagalassos, for instance underneath the slabs of the esplanade to the north of the Fountain House, the water infrastructure at Site LE was originally designed to form part of the water supply/drainage system of this part of the town (Martens 2004: 489-496/496-500).

### The Raised Sidewalk

The upper part of the southern support wall of the sidewalk was re-arranged in mortared rubble and spolia, on top of the original courses of ashlar. The front part of the new section was finished smooth, as if to receive a type of veneering.

As was the case with the walkway in front of the Neon Library, the one in front of Site LE's large building also received a mosaic floor at this stage (Fig. 12). Both mosaics were stylistically comparable, but the one of Site LE was not so well preserved as a result of continued occupation and use of the space offered by the sidewalk.

The latter mosaic pavement was executed in white and black, irregularly cut stone *tesserae* of rather large dimensions, including mainly rectangular, but also some triangular mosaic stones. The *tesserae* were inserted in a *nucleus* of pinkish mortar (thickness: 0.03m) that covered a grey *rudus*, visible in the areas where the *tesserae* were no longer in place. The underlying *statumen* remained covered.

Only in the western half of the sidewalk, the composition of the mosaic bedding was still recognisable. In the south and west the mosaic was bordered by a fragmentarily preserved broad band of irregularly placed white *tesserae* (R 1y). Within this frame a less broad band of black mosaic stones (R 1y – 6 *tesserae* wide: 0.20m) enclosed the central pavement area on all sides (partly preserved in the north, west and south), while a similar band subdivided the zone into separate



Fig. 12. The mosaic floor panels of the sidewalk.



panels (south part preserved). The eastern panel (2.9xmin. 3.3m – southern part preserved) had an orthogonal pattern of intersecting circles (diameter: 0.53m), which formed saltires of four quasi-tangent solid spindles in black, creating the effect of quatrefoils, and white poised concave squares (R 237a). At the centre of the saltires a square of four *tesserae* was added (as in R 237d). The – smaller – western panel (2.9x2.9m – western and southern parts preserved) was decorated with staggered rows of superposed groups of three adjacent lozenges, which were either completely white-coloured or composed of a black and white triangle (triangles: 0.35x 0.35x0.25m) and formed squares (laid out in black – 0.3x0.3m) (variation of R 161f). Both preserved panels were bordered by a black frame of 0.2m wide. Both panels were not complete, as important parts went missing along the front wall of the Site LE's main building. This already happened in antiquity as patches of lost mosaic floor were levelled with layers containing pottery datable between the 2<sup>nd</sup> and 5<sup>th</sup> centuries CE.

The appearance of a mosaic floor in the architectural context of a sidewalk at Sagalassos is in line with developments that took place in several Late Antique cities in the Eastern Mediterranean. From the 4<sup>th</sup> century CE onwards, mosaics started to take a more prominent role in the cityscape and appeared, for instance, in porticoes flanking streets and public buildings (Dunbabin 1999: 225, 304; Scheibelreiter-Gail 2011: 108). Mosaic-paved sidewalks are, for instance, attested at Ephesos, Sardis, Perge, Side and Laodikeia (Quatember *et al.* 2009: 129-132). The stylistic characteristics of the mosaic of Site LE's raised sidewalk follow general trends of the 4<sup>th</sup> and 5<sup>th</sup> centuries CE, often including interloped and interlaced designs combined in panels into a long carpet-like pavement, as applied in public and private contexts.

### PHASE 3

A range of changes was noticed at Site LE, affecting the unidentified public building. Somewhat later than the refurbishing of the raised sidewalk, the unidentified building lost its public character. Whether or not at the same time, the internal space of the building was re-arranged from three to four units (Fig. 13).

These changes may have been caused by the effects of the intentional destruction of the Neon Library, mainly by setting the edifice on fire (Waelkens *et al.* 2000; Poblome *et al.* 2008). Considering the fact that the roof and parts of the superstructure of the library came down during the fire, and that the back wall of the adjacent building at Site LE still stands higher than the east and back wall of the library, makes it difficult to imagine that at least the adjoining part of the unidentified building would not have seen some degree of damage. This disaster possibly caused the make-over of the latter building and the end of its unknown public character. Resolving the damage in function of the make-over possibly involved systematically lowering the back and east *opus vittatum* walls, by dismantling the masonry up to the same level, i.e. the lowest layer of mortar which held the next band of brick (Fig. 14). This would have created a workable level to construct a new roof over the re-arranged rooms. The central part of the back wall was dismantled up to an even lower band of bricks leaving a 1.10m deep and 3.70m wide gap in the wall, behind Rooms 2 and 4. The gap was bordered by 0.56m high and 0.30m wide ridge on the north side. Admittedly, this reasoning is but a hypothesis, as no chronological criteria are available in support.



Fig. 13. Overview of the walls and features associated with Phase 3.



Fig. 14. The dismantled masonry of the northern back wall of Site LE.

The excavations at Site LE provisionally confirmed the identification of a house in the westernmost of these units (Room 1), while to its east a textile workshop was presumably installed (Room 2). Inside the two easternmost rooms of the building (Rooms 4 and 8) and partially onto the sidewalk to their south, a coroplast workshop was organized.

### Room 1

Room 1 (width: 4.5m and length: 6.5m) was accessed from the south, through a simple door accessing the walkway. The room was divided into two parts. The low division wall (max. height: 1.1m) was constructed with one row of rubble and a mortar coating on the north side. It was placed perpendicular against the eastern wall of the library and the partition wall between Rooms 1 and 2. While the level of the floor in the north part of Room 1 (length: 2.6m) was kept more or less the same as in Phase 2, the southern part of the room (length: 3.4m) was elevated for about 0.5m.

The pottery from this fill was mixed, with a portion of 1<sup>st</sup> century CE material and another one of the 4<sup>th</sup> century CE. On top of this fill in the southern part of Room 1, a 0.05 to 0.10m thick floor level of compact grey mortar and beaten earth was laid out. No ceramics were associated with this locus. On top of it, a very compact 0.05m thick layer of beaten earth, consisting of light brown, silty sand and clay with disintegrated mortar, limestone pebbles and charcoal, contained ceramics from the 5<sup>th</sup> century CE, and possibly some late 4<sup>th</sup> century CE material as well. On this walking level, the lower half of a *pithos* was found, stowed into the SE corner of the room. Underneath this storage vessel, two ceramic loom weights were located. In the NE corner of the southern part of Room 1, two more loom weights were discovered. In 1993, when the western part of this space was excavated, two other *pithoi* were registered.

The northern part of Room 1 had a 0.05-0.1m thick grey, beaten earth floor containing disintegrated mortar and charcoal fragments. A second, upper floor level was distinguished of grey, silty-clayish material with mortar and charcoal particles, c. 0.3m in thickness. Both floor levels contained late 4<sup>th</sup> century CE pottery. Patches of plaster were preserved on the lower parts of the walls of the space. In front of the east and west wall, a single row of tiles, set on their sides, was fixed into the floor. Behind these, but also elsewhere in the space, 7 *pithoi* and 2 *lekanai* were found partially broken, but *in situ*. The *pithoi* were either dug a little into the floor, or fixed on the floor with tile fragments and rubble. The original content was still present in some of the vessels: both *lekanai* contained red grog (pulverized tile) and one of the storage vessels was filled with fine ash and charcoal chunks. Two *pithoi* along the west wall were partly filled with the same material as the upper floor level. Another 5 *pithoi* were identified in the western part of this space in 1993. Some of the storage vessels were lidded, as broken lids were found next to the sherds of the vessels. A special find was collected behind and below the *pithos* in the NW corner of the space. Here, a small concentration of animal bone was found, against the bottom of the vessel, containing a duck/goose sternum worked into a small mask and the paw of a hare.

At some point, Room 1 was destroyed by fire. The floor of the northern space was partially covered by a 0.05-0.1m thick, rather compact, black layer with some disintegrated mortar and a large amount of charcoal particles and chunks. The eastern part of the floor was covered by a 0.05-0.2m thick, loose, light brown to yellow layer with clay chunks, limestone rubble,



disintegrated mortar, a lot charcoal particles and some tile fragments. Both layers were in their turn covered by a 0.3-0.5m thick, loose, yellow/red/black layer with a lot of charcoal chunks (of wooden beams), some tile fragments, limestone rubble and mortar chunks. At this height, the level of the higher floor of the front part of Room 1 was reached. A final fire debris layer over the northern space was a 0.2-0.4m thick, loose, brown-grey layer with a lot of disintegrated mortar, limestone rubble, tile and large charcoal chunks. The floor of the southern part of Room 1 was covered by a 0.05-0.4m thick, loose, black layer with mortar chunks, limestone rubble, tile and a lot of large charcoal chunks. Taken together, the entire Room 1, including its roof was caught in the fire and collapsed.

Especially in the northern, back space most if not all (remaining) content was consumed by the flames, and was found partly broken or affected by the fire within the debris layers resulting from the fire. A collection of bowls, dishes, trays, jugs and cups was broken but reconstructable. Some vessels were discoloured as a result of the fire. Considering the position of the fragments in the debris, the set of tableware vessels possibly was stored on shelves. Not all the pottery from these layers has been quantified yet and the material of the recent excavations still needs to be matched with that excavated in 1993. The same shapes as discussed in J. Poblome (1999: 193-194, 258-259, 287) were represented (mainly Sagalassos red slip ware types 1A140-3, 1B130, 1C140, 1C180 and 1F160), suggesting a preliminary date during the second half of the 5<sup>th</sup> century CE for this collection of material, implying a *terminus post quem* for the fire to have wreaked havoc.

Other small finds retrieved from the debris layers in the northern part of Room 1 were, in iron: a collection of small decorative nails (footwear?), some chisels, two *styli*, a knife blade, a spearhead (tools), a lock, a key, rivets, pins, and various sizes of iron nails (appliances possibly indicating the presence of shelving, boxes or chests?); in bronze: a bell, and a handle (of a box?); in wood: a brush; in fired clay: loom weights, a potter's rib, and two complete oil lamps; in worked bone: several pins, and a ring; and a concentration of coins (a money pouch?) with all issues datable to the end of the fourth/early fifth centuries CE, up to a century before the fire.

Apart from the presence of a collection of tableware and some cooking ware, the available archaeo-zoological and macro-botanical evidence possibly indicates food storage and preparation related to Room 1. The soil samples collected from the walking level immediately south of the room, over the parts where the mosaic floor had worn out in the walkway, contained annual crops such as cereals (barley and free threshing wheat) and pulses (mainly lentil), together with their weeds. These most probably represented staple crop storage. Also, in almost all of the samples remains of fruits/nuts were identified, apparently also stored in the room. Numerous needles of fir (*Abies cilicica*) were present too. The richest archaeo-botanical finds were made in the floor levels and fire debris layers in the southern part of Room 1. In all of these strata whole fruits or fragments of almonds (*Prunus dulcis*) were found. Their biggest concentration was found associated with two *pithoi*. Besides almonds, also fragments of apple/pear fruits (*Malus/Pyrus*), *Vitis vinifera* fruits, and seeds of pomegranate (*Punica granatum*) were present. The debris layer contained a quantity of hulled barley (*Hordeum vulgare* var. *vulgare*), together with remains of chaff and a diversity of weeds. A high amount of needles of fir (over 60 fragments) was noted, accompanied with those of cedar in the floor level. Also the tops of cedar twigs and fragments of conifer twigs with different diameters were identified. Two flotation samples collected near

one of the *pithoi* in the northern part of Room 1 was dominated by lentil (*Lens culinaris*). The wooden brush mentioned above and found within this space, was actually identified as a result of the macro-botanical analysis. Closer examination of the fragments of worked wood identified a wooden plate with holes drilled close to one another (diameter *c.* 0.5-0.6cm). The holes were filled with long and thin hairs of plant origin (*c.* 1-1.3mm in diameter). The brush's hairs had traces of branching, possibly representing tiny plant stems. The attested collection of archaeo-botanical finds corresponds in general terms to plant remains deposited in occupational layers resulting from food storage (a combination of main staple foods – cereals, pulses and fruits/nuts) and other activities, such as plant materials which could be used in domestic fires.

Also meat was stored or prepared in the northern part of Room 1, as some animal bones – interpreted as consumption refuse – were discoloured as a result of the fire. It concerned chicken bones, and also some sheep/goat, pig and cattle bones. The majority of the animal remains, found in the debris layers, showed no traces of fire and should be considered as domestic consumption refuse and possible butchery waste, alongside animal cadavers, discarded when the site was accessible for a while after the fire. Notably, the proportion of sheep/goat bones did not dominate, as usual in contemporary deposits in Sagalassos, but was more or less equal to that of cattle and pig remains. For sheep/goat, all skeletal elements were represented, except for the horn cores, and among the pig remains many cranial fragments and ribs were counted. In the case of cattle, mainly rib fragments, vertebra, metapodalia (from which one complete), and phalanges were identified. The metapodalia and phalanges can be indicative of butchery waste, thrown in upon the abandonment of Room 1. Finally, remains of at least two donkeys were registered, possibly indicating the dumping of cadavers.

Although no hearth, cooking set or kitchen was present in Room 1, food was apparently present and consumed here, possibly using portable appliances. The quantity and quality of the food remains, together with the collection of tableware, are the best indications for the preliminary identification of Room 1 as a family house, with living space in the front and a larder in the back. Further study of the arte- and ecofacts should confirm this hypothesis. The presumed house was installed by the end of the fourth century CE, when the damaged former public building of Site LE was re-arranged in separate units, and abandoned by *c.* 500 CE following a devastating fire. When the house lay in ruins waste was dumped on the premises and recyclable material looted, such as more or less complete roof tiles, of which very few were actually found in the debris layers; mostly only fragments.



Fig. 15. General view of Room 2.



## Room 2

Room 2 (6.5m by 3.7m) (Fig. 15) was created by the addition of a division wall, built on top of the mosaic substrate in the former central room of the unidentified public building, in the course of the 5<sup>th</sup> century CE, or possibly already late in the previous one. The wall consisted of mortared limestone rubble with a coating of mortar, and some grey plaster patches near the bottom. The room was accessed from the south, through a reduced door opening of 1.1m wide, created by the addition of a dry wall of limestone rubble and spolia, including an architrave/frieze block, on top of the threshold of the façade of the former public building.

Inside, a 0.35m high, dry rubble division wall was constructed on top of the mosaic floor substrate. The wall was built perpendicular against the partition wall of Rooms 1 and 2 and was 2.7m long, leaving an opening at its eastern end. As was the case in Room 1, also this room consisted of two parts of respectively 1.9m and 4.20m deep. The low, internal division wall was built on top of a compact 0.04m thick, yellow layer containing some small 4<sup>th</sup> century CE sherds. This layer was deposited on the mosaic substrate, implying that the *tesserae* of the mosaic floor were already at least partially missing.

Another feature was a rubble stone (0.34x0.24m and 0.15m above the floor) with a flat upper surface situated more or less the middle of the room, and set within the floor substrate. This base could have carried a support for the superstructure over Room 2.

The original mosaic floor had already seen extensive weathering and damage. Most of the *tesserae* were missing, requiring the levelling out of the southern half of the room with a fill of very compact, dark grey, silty sand with some disintegrated mortar, pebbles and charcoal. This walking level contained 5<sup>th</sup> century CE pottery. The stone vessel installed in the mosaic floor was filled up as well. This fill held more pottery datable to the 5<sup>th</sup> century CE.

An unexplained niche-like opening was cut in the northern *opus vittatum* back wall. The semi-circular cut (height: 1.12m, width: 1.28m, depth: 1.11m) took the new eastern wall into account, and its bottom coincided with the mosaic floor. On the bottom of this man-made feature a large amount of *tesserae* was deposited, in a layer of up to 0.2m thick. These *tesserae* were the same as the ones in the few preserved patches of the mosaic floor in the former central room of the public building, suggesting a cleaning effort.

In the southern part of Room 2, three *pithoi* were uncovered, broken but more or less preserved *in situ*. One of these storage vats was placed against the west wall, the other two along the south side of the low, internal division wall. In the SE corner of Room 2, some kind of heating infrastructure was installed (Fig. 16). The feature was small and contained some charcoal/ash. It had heated sides, made of ophiolite clay (height: 0.11m) and also its bottom (width: 0.5m) consisted of the same clay. The feature was surrounded and supported by dark-grey, silty sand mixed with red and green ophiolitic clay, regular, cut volcanic tuff blocks (the largest one: 0.58x0.40x0.11m) and limestone rubble, installed on top of the 5<sup>th</sup> century CE walking level.

In the northern part of the room, two rectangular pits were dug through the mosaic floor substrate against the northern back wall. These two pits respectively measured 0.27x0.59x0.84m and 0.3x0.65x0.78m, and were positioned 1.9m apart. The sides of both pits and the channel connecting them (1.9x0.15x0.2m) were lined with mortar preserving the negative imprint of



Fig. 16. The heating infrastructure in the southern part of Room 2.

installation is imperative to establish the function of Room 2.

Next to the eastern beam of the installation and in front of the niche-like cut in the northern wall, a circular negative trace (0.38m in diameter) was visible in the preserved *tesserae* of the mosaic floor. Soft friction marks implied regular twisting or moving motions, possibly of a vat or vessel of some kind.

Room 2 is preliminary considered as a small-scale production unit. The wooden installation in the back space could have been a vertical loom, for heavy items such as curtains or carpets. Alternatively, it could also have been a standing press, to fold washed garments and textile. Visual depictions of looms and frames related to textile working come to mind, as documented by L. Larsson Lovén (2001: 48-49) and P. Walton Rogers (2001: 158-161). In any case, the amount and variety of arte- and ecofacts within Room 2 is very limited, which seems to exclude its functioning as a house, but which, at the same time, hampers further interpretation. Finding parallels for the wooden installation will prove crucial. Possibly, the vats and the heat installation in the front space could also be related to textile washing (and/or dyeing?), facilitating the rinsing of stains (and the fixation of pigment?). These would not have been large enough for the worker to stand in them, but pieces of textile could be manipulated in these nonetheless. Vats are also a regular feature in tanning (van Driel-Murray 2001). On the whole, this workshop is not equipped as the much discussed *fullonica* of Pompeii, for instance (Flohr 2013: 96-180),

wooden beams. Clearly, the channel and the pits originally contained large beams of a heavy installation (Fig. 17). The fill of the western pit contained mostly large charcoal chunks, and also a 0.34m long stepped iron rod with a curled hook. Nine holes were discerned in the northern wall above the pits, of which three still contained fragments of iron, presumably to fix the upper parts of the installation. Four of these holes formed a frame of 1.2m by 0.95m. Understanding this



Fig. 17. Negative traces of the wooden installation against the back wall of Room 2.

but its equipment, plus the presence of running water and basins in the late Hellenistic Fountain House across the esplanade, and the traces of wear on the fountain's basins' parapets resulting from to and fro movement associated with textile washing, possibly could have catered for cleaning, rinsing, drying (and pressing?) cloth.

Room 2 seems to have been installed in the same period as the presumed house next door, by the end of the 4<sup>th</sup> century CE or a little later. In contrast to Room 1, the presumed textile workshop was not destroyed in a fire. No structural collapse or debris layers were noted in Room 2. Nothing could be related to the fire next door or any other disaster for that matter. Presumably, in such circumstances, the occupants of Room 2 had the opportunity to abandon their workplace in an orderly and organized way. There is no direct evidence available to place the abandonment process in time, but the fact that a later walking level covered the remains of Phase 3 and that the same layer was excavated over the ruin of Room 1, seems to suggest general contemporaneity of events.

### **The Coroplast Workshop**

Room 4 (width: 4.3m, length: 6.5m), Room 8 (width: 3.5m, length: 6.5m) and the area in front of both rooms on the sidewalk could without doubt be identified as a coroplast workshop. In this workshop mould-made and decorated pottery, oil lamps and figurines were manufactured.

#### **Room 4**

Room 4 was created within the former central room of the public building by cutting and removing the mosaic floor and substratum, beyond the eastern wall of Room 2. In addition, the original partition wall with the eastern side room of the public building was taken down up to its mortared stone foundation. About 1m to the east, a new wall was erected, *c.* 0.7m wide, separating Rooms 4 and 8. As the original, southern doorway into Room 8, providing access from the sidewalk, was blocked, internal access to Room 8 was arranged by creating a door opening (width: 1.26m) in the new division wall.

The northern section of the new division wall was constructed differently from the southern part. In fact, only a lower course of *c.* 0.4m high and 1.2m long, in mortared limestone rubble topped with mortared brick fragments was built. This low wall was flanked on its northern side by a brick jamb/pilaster (9 bricks preserved of 30x30x4cm) mortared against the back wall of Room 4, and on its other side by the northern doorjamb of the door opening between Rooms 4 and 8, constructed of recycled limestone ashlar and rubble, completed and levelled with brick. In this way, an opening or recess was created in the northern section of the division wall between Rooms 4 and 8 (Fig. 18).

The southern doorjamb of the door opening between Rooms 4 and 8 equalled to the northern corner of the southern section of the new division wall between both rooms. The corner was strengthened with a spoliated ashlar and selected limestone rubble. The wall was constructed with limestone rubble, with bigger stone in the lower course and medium to small



Fig. 18. The recess in the northern part of the east wall of Room 4.

sized material on top. A second opening or recess of 0.56m wide was created in this wall section, at *c.* 0.68m north of the south wall. The northern edge of the recess was rudimentarily lined with various sized mortared brick fragments. The southern end of the division wall was integrated with the new southern façade wall, and constructed of recycled limestone ashlar and rubble, completed and levelled with brick

The entrance to Room 4 was a 1.53m wide door opening, flanked by rubble and spolia walls placed on top of the southern threshold. In contrast to Room 8, which was a potters working space and did not change function, the relative chronology and functions of Room 4 turned out to be much more complicated.

In a first period, a limekiln was constructed over the foundation of the removed internal wall of the former public building. The limekiln was located to the NW of the door opening between Rooms 4 and 8 (Fig. 19). It could only be partially exposed, as, in a later stage, a floor of brick fragments and a wall were constructed over its badly preserved remains. Only the lowest part of the structure was preserved, being its bowl-shaped floor (width: *c.* 1.3m, preserved depth: *c.* 0.38m), smeared with a layer of clay, which had turned red-brown as a result of the kiln's heat. The kiln opened towards the SW, sloping into a pit. The clay floor was partially lined with lime (max. thickness 0.07m). This feature was no recycled potters' kiln, as attested elsewhere at Sagalassos and also at Site LE, but purpose-built (for comparable structures and *modus operandi*, see Uschmann 2006 and Adam 1994: 65-73). The pit into which the limekiln opened also held a 0.03m thick layer of lime, and could have been used to hydrate or slake the



Fig. 19. The limekiln in the northern part of Room 4.



quicklime. This pit (length: *c.* 2m, width: *c.* 2.67m, max. depth: *c.* 0.84m) was bordered by a large stone (with lime attached) in the south, the foundation of the removed internal wall in the east, the northern back wall in the north, and continuing up to and beyond the west wall of Room 4. A small wall, of mortared, medium-sized limestone rubble and tuff blocks, was built in the bottom of the pit, connecting the northern back wall with the large stone in the south (length: *c.* 1.9m, width: 0.1-0.2m, height: 0.54m). The bottom of the pit was hard with small limestone fragments and lime. Only a small area was available to expose the pit as, in a later stage, a potters' kiln was built into it. The fact that the division wall between Rooms 2 and 4 was partially built over the pit, indicated that it was built relatively later. The western edge of the pit was located underneath the wall, as it was not visible in Room 2. Possibly, in the earliest stage of the re-arrangement of former public building, its central room was still used as such for a while. On the other hand, the limekiln could possibly also be related to the renovation process itself, producing lime for mortars and wall plasters, and the new division wall built as one of the final interventions.

One of the earliest actions in Room 4, once finished, was the construction of a potters' kiln (Fig. 20). The remains of this kiln were discovered to the SW of the door opening between Rooms 4 and 8. Here, a circular kiln was installed directly on top of the mentioned mortared stone foundation. Only the lower part of the firing chamber (inner diameter: *c.* 0.9m) and the central support (diameter: 0.17m) were preserved, with a flue opening (inner width: 0.48m) orientated towards the west and sloping down for *c.* 0.15m. The remains of the up-draft kiln were lined with 3 layers of brick fragments (height: 0.15m, width: 0.05-0.15m). The bricks and outside were smeared with mud plaster, which had turned red-brown due to the kiln's heat. In its final stage, the kiln was recycled as a limekiln. A *c.* 0.05m thick, white-grey slaked lime layer with some limestone chunks remained on the bottom. The kiln could not be fully excavated as its opening was situated underneath a younger wall.



Fig. 20. The potters' kiln in the eastern part of Room 4.

Additionally, a sequence of floor levels was excavated in this area. The lowest floor was a compact layer, covering the mortared stone foundation of the former division wall between the central and east rooms of the public building and a levelling fill. The pottery in this floor level was preliminary dated to the second half of the 5<sup>th</sup> century CE. On top of this walking level, another beaten earth floor was installed, covering most if not all of Room 4, and containing



material which was preliminarily dated to the late 5<sup>th</sup>/early 6<sup>th</sup> centuries CE. This second floor level was a witness to most activities in Room 4. On the one hand, it was partially discoloured reddish from heat radiation when the previously discussed potters' kiln (or recycled limekiln?) in the central eastern part of the room was active. On the other hand, when the latter kiln was dismantled, part of its waste material was spread across the SW and central part of the room, partially covering the floor level. Furthermore, limestone rubble, brick fragments, patches of potter's clay and potting tools and moulds were registered on top of the second floor's surface, testifying to its use and abandonment.

The latter floor was not found in the central area of the northern part of the room, corresponding to the front side of two kilns in this location. The first potters' kiln was constructed into and over the lime slaking pit, in the NW corner of Room 4 (Fig. 21). The backfill inside the pit, on top of which the kiln was erected, could be dated to the late 5<sup>th</sup>/early 6<sup>th</sup> centuries CE, suggesting that this and the previously discussed potters' kiln were most probably sequentially and not contemporaneously in operation. Only the lower part of the firing chamber of the circular kiln in the northern part of the room was preserved, with an opening (inner width: 0.37m) oriented towards the southeast, and a bottom of light grey (volcanic) sand with small limestone pebbles. A quarter of the kiln could be studied, as a younger rectangular oven was built on top of it, obstructing further excavation. The updraft kiln was lined with 10 layers of brick fragments (preserved height: 0.38m) and had an inner diameter of *c.* 0.9m. The bricks and outside were smeared with mud which had turned red-brown from heat radiation. Small to medium-sized limestone rubble was used as outer shell. The kiln showed no evidence of final re-use as a lime kiln.



Fig. 21. The potters' kiln in the NW part of Room 4.

Adjoining the latter kiln to the east, the very badly preserved remains of another potters' kiln were identified (Fig. 22). Apart from the typical discoloured zones outlining the silhouette of the kiln (diameter: 0.55m, length: 1.2m), the only structural evidence was a stretch of six consecutive brick fragments lining the lower part of the firing chamber on the east side, and the fact that a cut was made in the northern back wall of the room to accommodate the back of the kiln. The opening of the kiln (width: 0.3m) was oriented towards the southeast. Below the 0.01m thick, volcanic sand floor of the kiln a stratum of small limestone rubble was excavated. A dark grey/black, silty sand layer with plaster and charcoal outlined the structure. The kiln was installed into the mentioned second floor level, covering most of Room 4. Although



Fig. 22. The badly preserved remains of the potters' kiln in the northern part of Room 4.

this fact suggests general contemporaneity of both kilns in the northern part of the room, their area saw many changes, resulting in a very partial and compact stratigraphical record, disallowing the detailed reconstruction of the sequence of events. In any case, this last kiln was thoroughly dismantled when Room 4 was still in use.

With the installation of the kilns in the northern part of Room 4, a new functional zone was created. Probably

at the same time, the southern part of the room was also re-organized. A low wall divided the area into two rectangular zones, while the SE section was separated from the rest of the space and conceived as a room, with a door opening and shelving unit along its north side (inner width: 1.86-2m, inner length: *c.* 2.85m) (Fig. 23). A new beaten earth floor level covered this SE room, which did not extend beyond the space's boundaries, implying contemporaneity between walls and floor. The walls were partially built into underlying floor levels and their NW corner covered the dismantled flue of the original kiln of the workshop.

The west wall of the SE chamber (length: 3.25m) had a foundation of medium-sized limestone rubble. On top of that a narrow wall (*c.* 0.25m) of large spolia, brick fragments and small to medium-sized limestone rubble was placed. The wall was preserved to a height of 0.64m which is also considered as its original height. A door-jamb fragment was placed flat on top of the southern threshold of the former public building, continuing the line of this west wall. The SE room could be entered on the north side, via a door opening flanked by two rectangular limestone blocks. The threshold was made of small and medium-sized limestone rubble (width: 0.8m). Two



Fig. 23. General view of the re-arranged Room 4.

collapsed blocks found nearby could be related to the door opening. Between the door opening and the east wall of Room 4 a shelving unit was found (width: 0.89m, length: 0.53m, height: 0.45m). This unit of mortared, recycled brick fragments was partially constructed on top of the older foundation of the former public building. Up to eight brick layers were preserved. From the south side a specific build is recognizable. First, two layers of mortared brick fragments were placed, on top of which a more narrow section of mortared brick was placed. Upright brick fragments were also mortared against the south side of the upper part and a protruding support was created in the centre of the wall. We interpret this feature as a shelving unit, with two collapsed large tile fragments found just south of the unit perhaps representing the actual shelves. Another opening of 0.56m wide was noted in the east wall, which probably contained shelves as well. This shelving unit was accessible from both Rooms 4 and 8.

In the NE corner of Room 4, in between the north wall, the recess in the east wall and a new, short south wall, a floor section (width: 0.95m, length: 0.85m) was laid out in broken brick (Fig. 24). Its western limit was less regular and stopped where the cut in the north-



Fig. 24. The broken brick floor in the NE corner of Room 4.

ern back wall started. The new low south wall (width: 0.5m, length: 0.88m, height: 0.32m) consisted of two rows of large limestone blocks. The function of this feature was possibly related to the new partition wall inserted in the recess of the northern section of the division wall between Rooms 4 and 8. The new partition (width: 0.93m, preserved height: 0.9m) was actually more like a thin screen, consisting of a 0.15m thick brick wall, of loose build, creating a 0.4m deep niche or shelf. The wall was constructed of up to 15 layers of various sized half-bricks. Lightly baked clay was found in the interstices. In the centre, 0.13m above the bottom of the shelf, was a rectangular opening of 0.16x0.23m, closed off with a brick fragment. The softly baked clay, the brittleness of the bricks and the soot on these indicated that this wall came in contact with heat and smoke. Some regular tuff blocks were found in the soil that filled this niche afterwards. These blocks were likely part of this installation. From the other side, in Room 8, a similar soot-marked built was visible. On this side no floor section was found. In case the floor section and this screen should not be chronologically related, the brick wall could possibly have belonged to Phase 4 too.

To be sure, the finding of three potters' kilns inside Room 4 is sufficient proof for its identification as part of a potters' workshop. Additional evidence was available, however, such



as the admixture of green potting in especially the upper floor levels of Room 4. This green clay, used for Sagalassos red slip ware and related coroplast products, was also found concentrated in particular areas of the room, such as the central western part of the room on top of the floor. However, the presence of most clay patches could be associated with the last phase of activity of the coroplast workshop, and was mainly dispersed in the northern part of Room 4. A 3 to 4cm thick, green clay layer was found in the cut in the northern back wall, and on top of the floor section in broken brick. This clay was also stuck to the lower 0.3m of the walls in the NE-corner of the room. As a matter of fact, most piles of clay and the largest quantity of green clay on and in the floor were found in the northern section of the room. At some stage, both kilns in this part of the room were put beyond use, dismantled and covered with floor material, including important amounts of green clay. At that stage, this part of the room could have been devoted to working the wet, green clay into the coroplast moulds. A small column base (diam. 0.34m), turned upside down, was positioned on top of the youngest floor of the coroplast workshop (Fig. 25), which covered and extended beyond the brick floor section. In this context, the column base can be presumed to have been recycled as a turnable potting table. Next to it, a small rectangular marble wall veneer fragment, with circular twisting and turning marks, was found.



Fig. 25. Potter's turntable in Room 4.

Other concentrations of less homogenous, green clay were documented in zones preliminary identified as shelving units: near the doorway into Room 8, in the southern half of the SE room, and in the open niche in the wall between Rooms 4 and 8.

Resulting from the activities in the workshop, the floor level slowly accumulated. Materials such as clay, charcoal, kiln fragments, potters' tools and moulds, and objects were trampled into the floor or

fell on top of it. Various such accumulations were identified, but the discussion of the find material is beyond the scope of this contribution. Moreover, most of it still needs to be studied in detail and related to the phases of use and abandonment of the coroplast workshop. In general, the finds were datable to the 5<sup>th</sup> century CE and the early decade(s) of the next.

## Room 8

Room 8 was a large working space for the potters, and seems to have been used as such during the entire activity span of the workshop. The room measured 6.5 by 3.5m, with a vault-

ed extension in the southeast corner of 1.7 by 2.2m, and no internal divisions (Fig. 26). Its only point of entry was through Room 4. The room was abandoned with a lot of potting equipment still present. While Room 4 contained mostly oinophoros and oil lamp moulds, the excavation of Room 8 produced mostly stamps and several mould making tools in ceramic and metal. The bulk of these objects were retrieved near the edges of the room on top of the floor level related to the last phase of the workshop. Moreover, similar to Room 4, several objects were also found in the later fills/slope deposits, as though these finds only found their “final” position after Phase 4 or during the final abandonment and gradual collapse of the area. The green potting clay, and also a small amount leather-hard pottery, was found trampled into the floor, and also in larger piles near the corners of the room. This room also contained patches of the clay used for the slip covering the vessels in two locations: in the northwest corner and inside a broken vessel in the south central section of the room. Two more recycled column bases/potting tables were discovered: one on the floor next to the central part of the west wall and the other inside the partially collapsed water channel which ran underneath this room.



Fig. 26. General view of Room 8.

A small sounding of 1x0.8m in the southwest corner of Room 8, dug below the oldest 5<sup>th</sup> century CE floor level of the coroplast workshop, revealed a burned layer containing late 4<sup>th</sup> century CE pottery with fire-damaged 5<sup>th</sup> century CE material. Further research is required to establish the extent and nature of these layers, as these may hold the key to understanding the beginning of Phase 3.

In contrast to Room 4 only one floor level could be identified and attributed to the 5<sup>th</sup> century CE. This very compact, beaten earth, brown-grey 0.05-0.15m thick floor with small mortar chunks, charcoal and red baked clay spots also incorporated the top of the water channel running underneath the room. The limestone spine of the channel had a distinct shine/smoothness which is considered to result from continuous (foot-)traffic. While the water channel was open at three locations in Room 8, only one of the openings seemed intentional in order to provide the potters access to water. The top of the channel was incorporated into the *opus vittatum* north back wall at 1.85m, below its dismantled top.

Only one installation, or rather the silhouette of one, could be related to this phase. Against the central section of the east wall and near the northwest corner of the niche, a circular



reddish heat-radiated imprint (of a dismantled kiln?) was visible. The area had a diameter of *c.* 1.25m. No further details were observed, making it difficult to relate this feature to a specific pattern of activity or chronology.

### The Raised Sidewalk

Only a few patches of the late Roman mosaic floor remained in the part of the walkway in front of Rooms 4 and 8. Actually, the remains of two potters' kilns were uncovered (Fig. 27), of which one was partially worked into the mosaic substrate. The kilns were presumably installed after the ones in the north part of Room 4 were put beyond use. A first circular kiln was installed in the southwest corner of the sidewalk area, directly into the mosaic substrate. Only the lower part of the firing chamber (inner diameter: *c.* 1.4m) and the central support of cut brick (height: 4 bricks, 0.17m) were preserved, with the flue (inner width: 0.7-0.4m, length: 0.71m) oriented towards the northeast. The remains of the updraft kiln were lined with 8 layers of brick fragments (height: 0.37m, width: 0.1-0.13m). The bricks and outer side were smeared with mud plaster, which had turned red-brown due to the kiln's heat. In its final stage, the kiln was dismantled, levelled and filled with a small pottery collection datable to the 5<sup>th</sup> century CE. A part of the kiln waste material was used to create a small ramp up to the threshold of Room 4.



Fig. 27. The two youngest kilns of the coroplast workshop, installed on the sidewalk.

The second circular kiln was installed partly on top of the water channel in the north-west corner of the sidewalk area. Only the lower part of the firing chamber (inner diameter: *c.* 1.58m) was preserved. The remains of the updraft kiln were lined with 8 layers of brick fragments (height: 0.36m, width: 0.1-0.13m). Although the flue opening was not preserved, its reddish silhouette could be recognized (maximum width: 0.66m, maximum length: 1.08m). The opening was oriented towards the southeast. In its final stage, the kiln was recycled as a limekiln.

The activity area of the workshop was delimited in the south by the support wall of the sidewalk. A western limit could not be clearly defined. However, no evidence was found to establish that the workshop extended beyond the boundary of Room 4. In order to create an eastern border a wall was added in this phase (width: 0.72m, length: 4.23m), possibly partly on top of an already existing ashlar wall. This wall, made of ashlars, brick, rubble and tuff-blocks,

contained a doorway (width: 0.98m), granting access towards the east. The doorway was located just south of the kiln in the northwest corner of the walkway. The opening was barred by medium and large sized rubble at a certain point (in Phase 3 or 4?). To the south, a gap of *c.* 2m remained between the east wall and the edge of the walkway. This opening constituted another passage to the east, using the ashlar of the older wall below as a threshold.

While no clear floor level could be distinguished over the western half of the sidewalk in front of the workshop, a 0.05-0.1m thick, grey, compact beaten earth level containing small mortar chunks was noticed, covering the water channel in the eastern half of the area. In front of the threshold to Room 4, some evidence of metalworking (metal slag) could be related to this phase.

The style of the coroplast products produced in the workshop could be generally dated to the fifth century CE. The available evidence provided little clues to attribute the origin of the workshop, however. In contrast to Room 1, but in line with the presumed textile workshop, the coroplast workshop was not destroyed in a fire, nor could its abandonment be related to another disaster for that matter. Presumably, in such circumstances, the potters had the opportunity to abandon their workplace in an orderly and organized way. There is no direct evidence available to place the abandonment process in time. The latest stages of occupation were provisionally attributed to the early years of the 6<sup>th</sup> century CE. In contrast to the presumed textile workshop in Room 2, the content of which was largely curated, the potters of the coroplast workshop left hundreds of moulds, stamps, tools and their potting raw materials behind. The fact that occasionally green clay was still found drying inside moulds, that tools were retrieved as if in working sequence, and that the moulds in places seem to have fallen just in front of the shelves on which they were kept, does seem to suggest a sudden decision to abandon all.

### **The Water Infrastructure**

For this phase, changes were also noted in the NE part of Site LE, affecting the water channel coming from the east and leading into the shaft. The middle section of the channel was replaced and pavement slabs were laid out on top of it. This space could be interpreted as an alley, providing access to the upper terraces. Its origins probably dated back at least to the original installation of the water infrastructure in this area. The repairs or modifications to the water infrastructure proved difficult to date, due to lack of associated material. The new middle section of the channel (inner width: 0.32m, inner height: 0.4m) with a length of *c.* 6.3m was slightly shifted in orientation and its construction method differed from the previous phase. The channel used the terrace wall as its north wall and its south wall consisted of limestone rubble, lined with brick fragments on the inside. These fragments were wedged dry on top of each other. An outer shell of small to medium-sized limestone rubble in a soft crumbly mortar bordered the channel. The bottom of the water channel had a 0.05m thick mortar layer on which a single row of brick of 3x3x3.5cm was placed. Dry medium to large-sized limestone rubble and spolia formed the roof of the channel.

The E-W water channel was covered by a partially preserved pavement of flat limestone and spolia (width: 1.52-1.63m, length: *c.* 4.3m), providing access to Space 5. A 0.3m

thick substrate of brown-grey silty sand with limestone rubble and mortar chunks was used to stabilize the alley slabs. Steps bordered the east end of the pavement.

The southern upper part and the arched east opening of the vertical shaft were broken or collapsed. Mortared limestone rubble and spolia were added in a repair attempt. A new terracotta water pipe was also fixed into the western side of the shaft. Possibly, the concave, pierced stone lid, originally covering the shaft, was found in the later colluvium layers, downslope.

The water infrastructure lost its function when it was intentionally blocked with soil and debris. The soil that filled the water channel contained pottery that ranged in date between the second half of the 1<sup>st</sup> and the early 6<sup>th</sup> centuries CE. The shaft was completely filled with soil and then filled with limestone rubble and mortar chunks to create a sort of platform. The filling of the shaft was probably one single operation. The ceramics from these layers were dated to between the late Hellenistic period and the second half of the 5<sup>th</sup> century CE. The fill(s) of the N-S water channel underneath Room 8 could not be excavated for safety reasons. Some material was collected from the top, however, and dated to the second half of the 5<sup>th</sup> century CE.

## Space 5

To the north of the E-W water channel, an upper terrace and housing level was uncovered close to the surface. Only a small area was excavated within Site LE's boundaries. The southern edge of an E-W orientated building was found: Space 5 (inner width: 4.75m). The end of the structure was considered to be late Roman, as the last excavated layer starting at threshold level contained mainly 5<sup>th</sup> century CE material. The history and origin of Space 5 remain unknown. However, Space 5 still followed the orientation of the houses dating from Phase 1 and an older terrace wall was used as the foundation for the southern entrance. Chronological attribution remains difficult, as the SW corner of Space 5 was partially built on top of the NE corner of the vertical water shaft, built during Phase 2.

The visible part of the south wall of Space 5 was made of mortared limestone rubble and brick fragments (height: 0.8m). This wall interlocked with an east wall which could not be studied in detail. Space 5 had an entrance with brick threshold (width: 2.28m), leading into the alley. At some stage the door opening was narrowed by 0.69m and divided into two openings of 0.76m and 0.86m.

## Organized Abandonment?

As with the original installation of the house in Room 1, the textile workshop and the coroplast workshop, seemingly the end of these patterns of activity at Site LE also happened more or less at the same time, at some point around *c.* 500 CE or in the early decade(s) of the 6<sup>th</sup> century CE. The question should be raised whether or not some scenario was being played out? The blocking of the water infrastructure was intentional, for instance, and this operation must have affected the water provisioning in the wider neighbourhood. No contemporary signals of change were picked in the wider area during the intensive urban survey programme, however.

Unfortunately it was impossible to determine whether the fire destruction of the presumed house in Room 1 was planned or not, but the absence of fire damage in Room 2 did seem to suggest some level of control over the fire. Was this fire the cause of the abandonment of the entire facility, or rather a consequence of the closing of the facility, following the blocking of the water infrastructure? The latter scenario would have allowed for content curation, in the presumed house as well as in the adjoining workshops.

Apart from the general contemporaneity of the end of these textile and coroplast workshops, the fact that their abandonment seemed sudden should be taken into account, provoking the open question whether these actions were deliberate and, to a certain degree, planned. At least, the abandonment of a functional coroplast workshop was conscious, even if the reasons remain unknown. In general, the 6<sup>th</sup> century CE coroplast iconography and typology had changed compared to the material at Site LE, making this collection somewhat old-fashioned by the time of abandonment? Potter's tool kits were proven to be personal in the case of the craftsmen of Sagalassos (Murphy and Poblome 2012), suggesting it was less likely for such tool sets to be recycled elsewhere. Notwithstanding their abandonment, the structure of both workshops did not seem to have been affected, as indicated by the lack of roofing materials and collapse or destruction debris in the stratigraphical record, creating the opportunity for continued use of Site LE's infrastructure.

#### PHASE 4

During the final phase of occupation at Site LE, another thorough re-organisation of the structures was carried out (Fig. 28). Due to slope erosion processes, unfortunately, most structures were badly preserved and most walls only stood to a very limited height.

#### **Rooms 1 and 2, and the Western Part of the Sidewalk**

Both former rooms were connected with one another, by breaching their division wall. The rooms were still accessible from the sidewalk to their south, while the staircase connecting the latter with the lower sidewalk in front of the former Neon Library was narrowed by a simple limestone rubble wall. In this way, a new unit of three rooms was created (Fig. 29), connecting into one another, and with a wide (door?) opening on the east side, connecting with the newly arranged space extending over the east half of the former sidewalk. A small room was separated in the NE corner of the space created over the sidewalk. Due to slope erosion processes, most features were fairly badly preserved, disallowing, for instance, to conclude whether this new unit, or parts thereof, was still roofed or open.

After the fire in the presumed house of Room 1, no efforts were made to clean the room. Instead, two fills were arranged on top of the collapse. The lower fill was a 0.5-0.6m thick, loose, dark brown, silty sand fill with some mortar chunks, limestone rubble and tile fragments. The stratum contained a lot of large fragments of table ware. The upper fill was 0.1-0.2m thick and a very compact, dark grey, silty sand fill with limestone and charcoal spots on top. The pottery in this layer showed breakage patterns resulting from trampling, typically



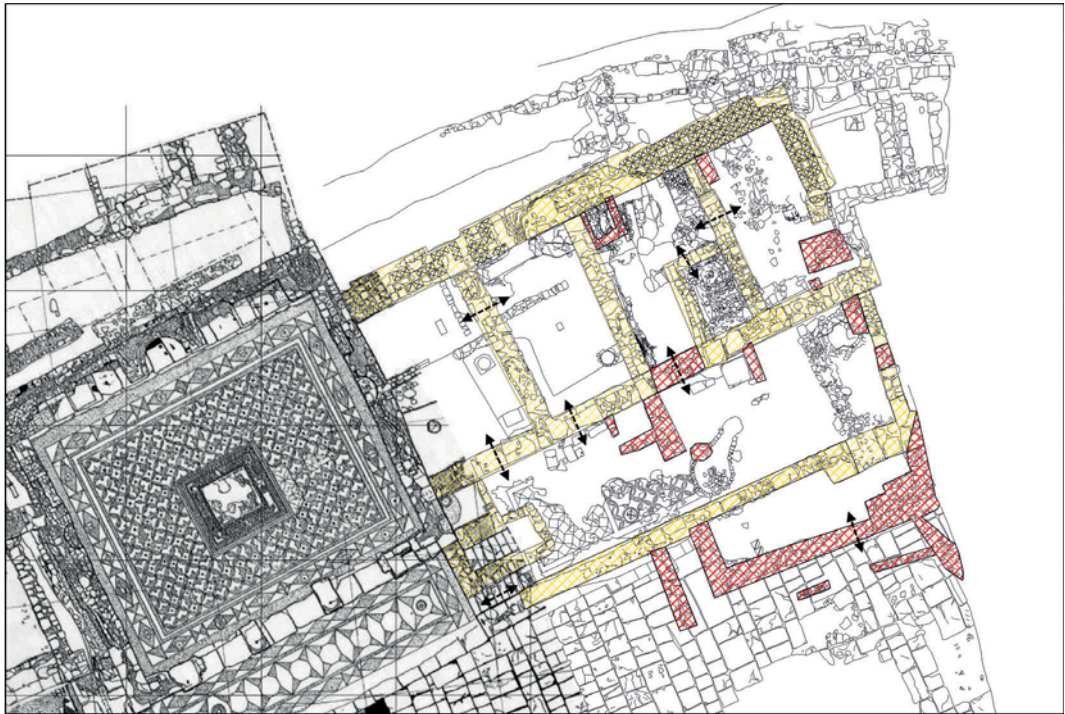


Fig. 28. Overview of the walls and features associated with Phase 4.



Fig. 29. General view of Rooms 1 and 2, Phase 4.



associated with walking levels. The new floor level reached up to the height of the threshold in the southern façade. The ceramics in both levelling fills were dated to the 6<sup>th</sup> century CE. No finds could be directly linked to the floor level.

An opening of 0.75m was created in the partition wall between Rooms 1 and 2, in order to combine both spaces. A segment of mortared small limestone and tile rubble was added on top of the southern part of the doorway. On top of the east wall of Room 2, a section was added as well (height: 0.82m): a course of tile fragments was used to fit large limestone rubble and spolia on top. Only one fill of 0.3-0.4m thickness was added inside Room 2, reaching up to the height of the threshold in the southern façade. This layer was datable to the 6<sup>th</sup> century CE and consisted of fairly compact, dark brown-grey, silty sand with a lot of red and green ophiolite stone and clay chunks. In the SE corner of Room 2, an irregular dry wall of limestone rubble (length: 1.6m, height: 0.35m) was built on top of the fill, perpendicular to the eastern wall, at about 1.99m from the southern wall. The top part of the wall partitioning off the northern part of the room was still visible as well. A step (height: 0.3m) of several flat spolia was added in front of the threshold of Room 2, providing easier access. The step was flanked by a short extension of the division wall between Rooms 1 and 2.

The new space created over the sidewalk in front of Rooms 1 and 2 was covered with a 0.05 to 0.1m thick layer, attributable to the 6<sup>th</sup> century CE. On top of that fairly compact, dark to light brown, silty sand and clayey layer, with some limestone, a couple of black coloured areas was visible, related to open fires or hearths. A rectangular Olynthian, upper millstone (0.46x0.37x0.13m) was found on top of it as well. Olynthian milling installations have been registered in a couple of other excavation areas within Sagalassos, and are normally not associated with private, household processing of grain. Considering the quantities such mills could process, their use by professional millers/bakers can be postulated. Sampling for macro-botanical analysis of the walking level on top of sidewalk confirmed the processing of grain, in the area where the milling stone was found. The samples were dominated by free threshing wheat grains (*Triticum aestivum/durum*), and also contained remains of plums (*Prunus* sp.) and walnut (*Juglans regia*), and weed seeds/fruits and needles of fir (*Abies cilicica*). The archaeobotanical finds are indicative of food preparation/consumption and the presence of fires or hearths.

In the NE corner of the new space over the sidewalk a small room (length: 1.21m, width: 1.45m) was built. It was delimited by a wall of cut tuff blocks in the west (length: 0.72m, height: 0.46m), the south wall of Room 2 in the north, a dry wall of limestone rubble in the south (length: 1.43m, height: 0.43m), and a dry wall of limestone rubble, tile and spolia in the east (length: 2.39m, height: 0.35m). The latter wall was a continuation of the division wall between Rooms 2 and 4. In the SW corner of this small space, an opening of 0.49m was arranged. A large deposit of fragmented tile was found inside this space. The pottery retrieved from this locus was 6<sup>th</sup> century CE in date.

The remodelling of the spaces of this unit, as well as their use and eventual abandonment can be attributed to the 6<sup>th</sup> century CE. The mill stone and the macro-botanical evidence are indicative of grain processing and milling activities, at a higher than household level. It is unclear whether and how the fairly large collection of local tablewares in Room 1 can be associated with these activities, as much of this material formed part of fills. It is also unclear

whether these spaces were originally roofed. The milling activity would suggest as much, while the presence of open fires invokes caution, even if not making a roof of some kind impossible.

### Rooms 4 and 8, and the Eastern Part of the Sidewalk

In similar terms, Rooms 4 and 8 and the part of the sidewalk in front of both rooms, was re-organized as one or two new units.

After the coroplast workshop was abandoned, no new floor levels were created in Rooms 4, as had happened in Rooms 1 and 2. Various loci were identified, however, which contained mostly large fragments of the local Sagalassos table ware, datable to the 6<sup>th</sup> century CE. Upon abandonment, the entrance to Room 4 was barred with limestone rubble and brick fragments. During this phase, this had been the only entrance into Rooms 4 and 8.

In the same period, a rectangular oven (Fig. 30) was built over the remains of the potters' kiln in the NW corner of Room 4 and its backfill. Only the lower ash chamber was preserved (inner width: 0.87m, inner length: *c.* 1.22m, height: 0.74m). The oven used the northern wall of Room 4 as its back wall. The other walls were constructed with up to 13 layers of stacked half-bricks of various sizes. The sidewalls partially rested on top of the lower circular pot-



Fig. 30. The preserved lower part of the rectangular oven in Room 4.

ters' kiln. The west wall was built against the division wall between Rooms 2 and 4. The trapezoidal opening of the ash chamber (width: *c.* 0.4m) in the southern wall was covered by a recycled doorsill (77x40x13cm). Charcoal was attested in the area of the opening. These remains were considered to originally have formed part of a bread kiln, of which the oven floor and arched superstructure were not preserved. Unfortunately, Roman bread kilns are not

that well known, apart from the textbook examples of the reliefs on the tomb of M. Vergilius Eurysaces in Rome, the House of the Oven in Pompeii or the mosaic panel from Saint-Romain-en-Gal (Curtis 2001: 366, Thurmond 2006: 68-71, Blanc and Nercessian 1992: 85, Pirson 2007: 460-463), and their functioning is mostly deduced from general similarities with other pre-industrial baker's ovens.

The upper part of the oven had been dismantled in a controlled manner, thus creating a level top. Its southern opening was also closed off by a marble flat slab (47x40x8cm) and the ash chamber was backfilled, containing 6<sup>th</sup> century CE material in the top levels. A concentra-

tion of similar bricks, with soot marks, was noticed to the east of the structure, forming part of the upper fill of the north section of Room 4. Taken together, this evidence is indicative of conscious abandonment behaviour, putting the oven out of use.

In Room 8 a new floor level was arranged, containing material which was preliminary dated to the second half of the 6<sup>th</sup> century CE. The new floor substrate ranged in thickness from 0.05 to 0.3m in thickness, related to the arching of the former water channel. The substrate was rather compact, dark brown grey and contained limestone and brick fragments, green clay chunks, charcoal and mortar chunks.

The SE part of Room 8 was converted into a kitchen, featuring a stone mortar and a well preserved cooking set, partly installed in the arched niche in this corner of the room (Fig. 31). In order to create a level surface for the cooking set the green clay was re-arranged and more or less evenly spread in the area of the niche (thickness: 0.05-0.1m). In the area to the south of the feature (max. width: 0.9m), which is considered behind it, a considerable amount of mostly large fragments of the local table ware, datable to the second half 6<sup>th</sup> century CE, was found. A short N-S wall, made of brick fragments and spolia, contained a narrow doorway (width: 0.42m) from which this pantry(?) could be entered. In the area in front of the cooking set (max. width: 0.8m) nearly no finds were registered, while the soil was very compact (thickness: 3-5cm) and contained stratified ashes and charcoal, resulting from repeated cleaning operations.



Fig. 31. The cooking set in Room 8.

The cooking set itself was made of regular medium-sized limestone rubble at the corners and backside and brick and tile fragments as the main body, kept together by mud plaster (length: 1.35m, width: 0.7m, height: 0.35m). Heat radiation caused the mud plaster to bake and turn reddish. The centre of the stove contained the stoking chamber, which opened to the north and was covered by an arched tuff block fragment (width: 0.25m, height: 0.17m) with clear soot marks. A *pithos* rim fragment was installed in front of the stoking chamber. The top of the stove contained three round depressions that were connected to the stoking chamber. While the central depression was located immediately above the latter, the other two were connected to the chamber by a small funnel (diameter of the depressions from east to west: 0.32m, 0.1m and 0.12m). On its west side a large stone slab was integrated into the feature (0.96 x 0.46 x 0.1-0.14m).

The aforementioned stone mortar was found round the corner, in the main room. It was in fact a re-used cylindrical late Hellenistic/early Roman Imperial decorated stone funerary urn (preserved height: 0.58m, outer diameter: 0.51m). The mortar was lined on its south side by a single course of three medium-sized tuff blocks.

Although food preparation seems to have been the main occupation in Room 8, it may not have been the only one: a lime kiln and two lime settling basins were registered in the area as well. A lime settling basin (1.07x0.57x0.34m) was found in the northwest corner of the room. Its fill was preliminary dated the 6<sup>th</sup> century CE, while the floor it was dug into was 5<sup>th</sup> century CE in date. Another basin was found in the central area of the former(?) walkway, installed against the threshold ashlar of the southern façade (left unexcavated). The circular molten base of a lime kiln (diameter: 0.7-0.8m) was noted, partially dug into the north side of the potter's kiln in the southwest corner of the walkway. It remains difficult to establish whether these activities took place at the end of Phase 3 or rather in Phase 4, however.

What other activities took place in the eastern half of the raised sidewalk is still unclear. The floor level remained more or less the same as during Phase 3, while the area in front of Rooms 4 and 8 was extended to the south, claiming a section of the street (max. inner width: 8.06m, max. inner length: 2.52m). In this way, a new square space or room of roughly 8 by 8m was created, opening into the western unit. This extension was built by first adding a fill, preliminary dated to the 6<sup>th</sup> century CE. The platform was bordered by dry built walls (width: *c.* 0.7m) made of spolia, rubble and brick and tile fragments. An entrance was created near the southeast corner of the platform (width: *c.* 1m). In the southeast corner, east of the doorway, the podium wall thickened to *c.* 1.60m.

The intensive urban survey campaign of 1999 indicated that the surface finds in the general area of the east slope towards the Theatre petered out after the middle of the 6<sup>th</sup> century CE (Martens 2004: 215). The eastern unit or units, and Phase 4 of Site LE for that matter, can be considered largely compatible with this evolution. The activities at Site LE lasted into the second half of the 6<sup>th</sup> century CE, but possibly stopped before the end of that century. The dismantling of the bread kiln as well as the blocking of the entrance into Room 4 and 8 seem to suggest a scenario of orderly and planned abandonment, not resulting from a sudden or disastrous event. The functional indications of the eastern unit(s) were related to food preparation. The well-preserved kitchen in Room 8 was a fortuitous find, related to household activities. The bread kiln, on the other hand, was in line with the Olynthian mill stone found in front of Room 2, suggesting the presence of a professional bakery during the final phase of occupation of Site LE.

The detailed find processing of all phases of occupation at Site LE shall hopefully provide further insights into the chronology and nature of the many activity patterns the site and its features witnessed during more than half a millennium.



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## BIBLIOGRAPHY

- Adam, J.-P., 1994 — Roman building. Materials and techniques. Bloomington: Indiana University Press.
- Balmelle, C., M. Blanchard-Lemée, and J. Christophe, 1985 — Le décor géométrique de la mosaïque romaine. Répertoire graphique et descriptif des compositions linéaires et isotropes. Paris: A. et J. Picard.
- Dunbabin, K.M.D., 1999 — Mosaics of the Greek and Roman World. Cambridge: Cambridge University Press.
- Flohr, M., 2013 — The world of the *fullo*. Work, economy, and society in Roman Italy. Oxford: Oxford University Press.
- Larsson Lovén, L., 2001 — Images of textile manufacture in funerary iconography, In: M. Polfer (ed.), L'artisanat romain: évolutions, continuités et ruptures (Italie et provinces occidentales). Monographies Instrumentum 20, 43-53. Montagnac: Editions Monique Mergoil.
- Martens, F., H. Vanhaverbeke, and M. Waelkens, 2008 — Town and suburbium at Sagalassos. An interaction investigated through survey, In: H. Vanhaverbeke, J. Poblome, F. Vermeulen, M. Waelkens, and R. Brulet (eds.), Thinking about space. The potential of surface survey and contextual analysis in the definition of space in Roman times. Studies in Eastern Mediterranean Archaeology 8, 127-149. Turnhout: Brepols.
- Murphy, E.A., and J. Poblome, 2012 — Technical and social considerations of tools from Roman period ceramic workshops at Sagalassos (Southwest Turkey): not just tools of the trade? *Journal of Mediterranean Archaeology* 25(2): 71-91.
- Poblome, J., 1999 — Sagalassos Red Slip Ware. Typology and Chronology. Studies in Eastern Mediterranean Archaeology 2, Turnhout: Brepols.
- Poblome, J., M. Corremans, P. Bes, K. Romanus, and P. Degryse, 2008 — It is never too late... The Late Roman initiation of amphora produc-



- tion in the territory of Sagalassos, In: I. Delemen, S. Çokay-Kepçe, A. Özdizbay, and Ö Turak (eds.), *Euergetes. Festschrift für Prof. Dr. Haluk Abbasoğlu zum 65. Geburtstag, 1001-1012*. Antalya, Suna & İnan Kıraç Research Institute on Mediterranean Civilizations.
- Quatember, U., V. Scheibelreiter, and A. Sokolicek, 2009 — Die sogenannten Alytarchenstoa an der Kuretenstraße von Ephesos, In: S. Ladstätter (ed.), *Neue Forschungen zur Kuretenstraße von Ephesos. Archäologische Forschungen* 15, 111-154. Vienna: Österreichischen Akademie der Wissenschaften.
- Scheibelreiter-Gail, V., 2011 — Die Mosaiken Westkleinasiens. Tessellate des 2. Jahrhunderts v. Chr. bis Anfang des 7. Jahrhunderts n. Chr. *Sonderschriften des Österreichischen Archäologischen Institutes* 46, Vienna: Phoibos Verlag.
- Uschmann, K.-U., 2006 — Kalkbrennöfen der Eisen- und römischen Kaiserzeit zwischen Weser und Weichsel. *Befunde-Analysen-Experimente. Berliner Archäologische Forschungen* 3, Rahden/Westf.: Verlag Marie Leidorf.
- Van Driel-Murray, C., 2001 — Technology transfer: the introduction and loss of tanning technology during the Roman period, In: M. Polfer (ed.), *L'artisanat romain: évolutions, continuités et ruptures (Italie et provinces occidentales)*. *Monographies Instrumentum* 20, 55-67. Montagnac: Editions Monique Mergoïl.
- Waelkens, M., 1993 — Sagalassos. History and archaeology. In: M. Waelkens (ed.), *Sagalassos I. First general report on the survey (1986-1989) and excavations (1990-1991)*, 37-81. Leuven: Leuven University Press.
- Waelkens, M., E. Paulissen, E. Owens, B. Arkan, L. Gijsen, M. Martens, V. Mataoucheck, and K. Vandaele, 1995 — The 1993 excavations in the Fountain House-Library area, In: M. Waelkens and J. Poblome (eds.), *Sagalassos III. Report on the fourth excavation campaign of 1993*, 47-89. Leuven: Leuven University Press.
- Waelkens, M., H. Kökten Ersoy, K. Severson, F. Martens, and S. Sener, 2000 — The Sagalassos Neon Library mosaic and its conservation, In: M. Waelkens and L. Loots (eds.), *Sagalassos V. Report on the survey and excavation campaigns of 1996 and 1997*, 419-447. Leuven: Leuven University Press.
- Walton Rogers, P., 2001 — The re-appearance of an old Roman loom in medieval England, In: P. Walton Rogers, L. Bende Jørgensen, and A. Rast-Eicher (eds.), *The Roman textile industry and its influence. A birthday tribute to John Peter Wild*, 158-171. Oxford: Oxbow Books.